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WINDS OBSERVED FROM MAY 1971 THROUGH OCTOBER 1974  
IN THE 77 TO 194 KM ALTITUDE REGION

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## EXPLANATION OF THE TABLES

Tables are presented which give horizontal wind speed, heading and components and shear components as determined from 18 rocket released chemical clouds. The releases occurred between May 1971 and October 1974 at Eglin Air Force Base, Florida. The initial coordinates were approximately  $30^{\circ}\text{N}$ ,  $87^{\circ}\text{W}$  for these releases. Included in the tables are rocket code names, launch dates and launch times. All velocities are in m/sec and shears in m/sec/km. The shears were calculated by use of a spline fit cubic procedure with assumed zero second derivative at the end points, and, as a result, the shears for the first two and last two altitudes of a rocket may not be as accurate as the remaining values. Positive wind and shear components indicate winds and shears toward the north and east. Negative wind and shear components indicate winds and shears toward the south and west. Wind headings are given in degrees east of north.

Fourteen of the releases consisted of puffs as well as trails. Horizontal and vertical winds determined from the puffs are also tabulated. Vertical winds are in m/sec and are positive upward. Graphs of the horizontal trail winds and vertical winds from the puffs are also given. Curves shown on the graphs are the spline fit cubic functions which were also differentiated to compute the wind shears.

# SYNOPSIS OF RELEASES

MAY, 1971	TRAIL	POINT	UPLEG	DOWNLEG
KAY	X	X	X	X
LYNN	X	X	X	X
MARY	X	X	X	
ORA	X	X	X	
PAM		X	X	
QUANTIA		X	X	
ROSY	X		X	
APRIL, 1972				
AGNES		X	X	
BARBARA		X		X
CLARA	X	X		X
ELLA	X		X	
FREDA	X			
GLADYS	X		X	
HOPE	X	X	X	X
INGRID		X		X
JANE		X	X	
OCTOBER, 1972				
KATHY	X	X		X
LANA	X		X	

CODE NAME	LAUNCH DATE	5/17/71	TIME	2002 CDT
HEIGHT (KM)	N-S WIND (M/S)	E-W WIND (M/S)	N-S SHEAR (M/S/KM)	E-W SHEAR (M/S/KM)
93	10	33	9	4
94	17	33	1	1
95	16	22	1	1
96	17	22	1	1
97	15	24	1	1
98	3	45	3	1
99	7	57	3	1
100	16	89	3	1
101	12	89	1	1
102	10	89	1	1
103	4	75	1	1
104	2	67	1	1
105	1	53	1	1
106	1	42	1	1
107	1	33	1	1
108	1	25	1	1
109	1	17	1	1
110	1	11	1	1
111	1	9	1	1
112	1	8	1	1
113	1	7	1	1
114	1	6	1	1
115	1	5	1	1
116	1	4	1	1
117	1	3	1	1
118	1	2	1	1
119	1	1	1	1
120	1	0	1	1
121	1	0	1	1
122	1	0	1	1
123	1	0	1	1
124	1	0	1	1
125	1	0	1	1
126	1	0	1	1
127	1	0	1	1
128	1	0	1	1
129	1	0	1	1
130	1	0	1	1
131	1	0	1	1
132	1	0	1	1
133	1	0	1	1
134	1	0	1	1
135	1	0	1	1
136	1	0	1	1
137	1	0	1	1
138	1	0	1	1
139	1	0	1	1
140	1	0	1	1
141	1	0	1	1
142	1	0	1	1
143	1	0	1	1
144	1	0	1	1
145	1	0	1	1
146	1	0	1	1
147	1	0	1	1
148	1	0	1	1
149	1	0	1	1
150	1	0	1	1
151	1	0	1	1
152	1	0	1	1
153	1	0	1	1
154	1	0	1	1
155	1	0	1	1
156	1	0	1	1
157	1	0	1	1
158	1	0	1	1
159	1	0	1	1
160	1	0	1	1
161	1	0	1	1
162	1	0	1	1
163	1	0	1	1
164	1	0	1	1
165	1	0	1	1
166	1	0	1	1
167	1	0	1	1
168	1	0	1	1
169	1	0	1	1
170	1	0	1	1
171	1	0	1	1
172	1	0	1	1
173	1	0	1	1
174	1	0	1	1
175	1	0	1	1
176	1	0	1	1
177	1	0	1	1
178	1	0	1	1
179	1	0	1	1
180	1	0	1	1
181	1	0	1	1
182	1	0	1	1
183	1	0	1	1
184	1	0	1	1
185	1	0	1	1
186	1	0	1	1
187	1	0	1	1
188	1	0	1	1
189	1	0	1	1
190	1	0	1	1
191	1	0	1	1
192	1	0	1	1
193	1	0	1	1
194	1	0	1	1
195	1	0	1	1
196	1	0	1	1
197	1	0	1	1
198	1	0	1	1
199	1	0	1	1
200	1	0	1	1

CODE NAME., LYNN(UP)

LAUNCH DATE., 5/17/71 TIME., 2002 CDT

HEIGHT (KM)	SPEED (M/S)	HEADING (DEG)	N-S WIND (M/S)	E-W WIND (M/S)	N-S SHEAR (M/S/KM)	E-W SHEAR (M/S/KM)
*****	*****	*****	*****	*****	*****	*****
81	53	252	-16	-50	-17	57
82	40	251	-13	-37	11	8
83	11	230	-7	-8	0	36
84	20	103	-4	19	15	16
85	37	51	23	28	29	10
86	61	43	45	41	16	11
87	71	43	52	48	-4	3
88	70	46	48	50	10	4
89	85	44	61	59	-10	15
90	81	70	27	77	-34	15
91	85	83	11	85	-5	4
92	81	84	8	81	-5	17
93	53	90	0	53	-9	30
94	33	102	-7	32	-5	10
95	31	110	-11	29	-3	4
96	25	120	-12	22	-3	7
97	21	112	-8	19	-2	1
98	25	89	-1	25	16	1
99	45	71	15	42	-22	25
100	70	95	-6	69	-29	24
101	91	110	-31	86	-19	10
102	100	116	-43	90	-6	1
103	101	117	-45	90	-1	1
104	101	118	-48	89	-4	3
105	96	124	-54	80	-6	19
106	74	134	-51	53	17	28
107	45	133	-30	33	7	11
108	28	131	-18	21	52	27
109	65	346	64	15	65	27
110	94	345	90	25	11	4
112	126	345	122	33	10	9
113	126	348	123	21	8	8
114	109	354	109	12	-17	24
115	95	12	93	19	-15	17
116	80	11	78	15	-14	10
117	66	10	65	11	-1	5



CODE NAME, .	LYNM(DOWN)	LAUNCH DATE, .	5/17/71	TIME, .	2002	COT
HEIGHT (KM)	SPEED (M/S)	HEADING (DEG)	N-S WIND (M/S)	E-W WIND (M/S)	N-S SHEAR (M/S/KM)	E-W SHEAR (M/S/KM)
81	56	303	31	47	45	6
82	40	260	18	39	28	14
83	31	235	17	25	28	32
84	19	209	28	26	22	55
85	14	49	35	34	11	55
86	57	526	45	57	11	55
87	68	470	47	48	16	57
88	77	409	37	40	15	8
89	59	529	19	36	12	6
90	59	670	80	43	12	6
91	52	709	13	22	12	14
92	43	690	3	23	15	17
93	32	110	40	34	11	17
94	22	123	13	37	11	17
95	27	123	13	37	11	17
96	24	110	13	37	11	17
97	24	110	13	37	11	17
98	24	110	13	37	11	17
99	24	110	13	37	11	17
100	24	110	13	37	11	17
101	24	110	13	37	11	17
102	24	110	13	37	11	17
103	24	110	13	37	11	17
104	24	110	13	37	11	17
105	24	110	13	37	11	17
106	24	110	13	37	11	17
107	24	110	13	37	11	17
108	24	110	13	37	11	17
109	24	110	13	37	11	17
110	24	110	13	37	11	17
111	24	110	13	37	11	17
112	24	110	13	37	11	17
113	24	110	13	37	11	17
114	24	110	13	37	11	17
115	24	110	13	37	11	17
116	24	110	13	37	11	17
117	24	110	13	37	11	17
118	24	110	13	37	11	17
119	24	110	13	37	11	17
120	24	110	13	37	11	17
121	24	110	13	37	11	17
122	24	110	13	37	11	17
123	24	110	13	37	11	17
124	24	110	13	37	11	17
125	24	110	13	37	11	17
126	24	110	13	37	11	17
127	24	110	13	37	11	17
128	24	110	13	37	11	17
129	24	110	13	37	11	17
130	24	110	13	37	11	17
131	24	110	13	37	11	17
132	24	110	13	37	11	17
133	24	110	13	37	11	17
134	24	110	13	37	11	17

CODE NAME., MARY(UP)

LAUNCH DATE., 5/17/71

TIME., 2106 CDT

HEIGHT (KM)	SPEED (M/S)	HEADING (DEG)	N-S WIND (M/S)	E-W WIND (M/S)	N-S SHEAR (M/S/KM)	E-W SHEAR (M/S/KM)
94	40	119	-19	35	5	7
95	44	112	-16	40	-1	2
96	44	117	-20	39	-3	-3
97	42	116	-18	38	7	1
98	47	104	-12	46	-2	18
99	71	108	-22	68	-11	18
100	81	110	-28	76	-4	0
101	80	115	-33	72	-9	-5
102	80	124	-44	66	-9	-7
103	76	130	-49	58	-1	-8
117	39	353	39	-5	-12	0
118	28	347	27	-6	-9	-7
119	26	319	20	-17	-11	-10
120	26	279	4	-25	-16	-10
121	38	256	-9	-37	-12	-11
122	50	247	-20	-46	2	-4

CODE NAME., ORA(UP)

LAUNCH DATE., 5/17/71

TIME., 2205 CDT

HEIGHT (KM)	SPEED (M/S)	HEADING (DEG)	N-S WIND (M/S)	E-W WIND (M/S)	N-S SHEAR (M/S/KM)	E-W SHEAR (M/S/KM)
95	19	91	0	19	37	17
96	43	49	28	33	13	6
97	41	51	26	32	-10	-4
98	36	60	18	31	-5	4
99	42	69	15	39	0	11
100	50	74	14	48	-6	2
101	47	81	8	47	0	2
102	56	85	5	56	-20	14
103	72	111	-26	68	-20	44
104	69	112	-26	64	9	8
105	56	105	-15	54	19	-16
106	34	69	12	32	30	-26
107	43	3	43	2	34	-35
108	78	342	75	-24	22	-1
109	84	355	84	-7	22	-13
110	84	353	84	-10	22	-7
112	78	354	77	-8	0	2
113	78	354	78	-8	1	-1
114	70	354	70	-7	-19	-4
115	44	355	44	-4	-26	-1
116	25	339	23	-9	-18	-6
117	15	287	4	-14	-21	-5
118	29	234	-17	-24	-19	-18
119	58	233	-35	-47	-20	-20
120	84	229	-55	-63	-16	-20
121	106	232	-64	-84	33	-11
122	106	233	-64	-85	5	9
123	95	232	-59	-74	5	6
124	90	233	-54	-72	6	4
125	84	234	-49	-68	2	-4
126	93	239	-48	-80	5	-11
127	94	246	-38	-86	1	2

CODE NAME..	ROSY(CUP)	LAUNCH DATE..	5/20/71	TIME..	2015	CDT
HEIGHT	SPEED	HEADING	N=S WIND	E=W WIND	N=S SHEAR	E=W SHEAR
(KM)	(M/S)	(DEG)	(M/S)	(M/S)	(M/S/KM)	(M/S/KM)
***	***	***	***	***	***	***
114	93	24	85	38	11	-10
11156	1007	117	96	29	14	-5
11178	104	114	103	20	8	-4
11189	693	112	78	19	13	00
1120	807	117	66	20	10	00
1120	57	119	54	19	16	-20
11234	40	124	36	16	12	-20
1124	2207	133	22	15	10	1
11267	121	142	19	17	11	3
11289	340	133	20	19	17	4
1130	520	154	33	23	17	3
11333	66	152	50	28	8	1
11334	73	156	60	29	7	2
11355	80	162	76	27	5	3
11378	77	169	85	29	5	4
11390	90	177	95	30	4	5
1140	104	178	104	35	6	4
1144	162	177	111	47	6	7
11443	124	185	120	10	5	7
11454	36	190	134	20	2	9
11467	40	184	139	3	8	6
11490	43	186	144	19	3	3
1150	50	189	146	27	1	5
11525	53	193	147	30	1	6
11545	59	197	154	45	1	8
11567	60	194	168	59	1	9
11570	60	176	189	78	2	9

CODE NAME	CLARA (D)	LAUNCH DATE	4/12/72	TIME	1843	CST
HEIGHT (KM)	SPEED (M/S)	HEADING (DEG)	N-S WIND (M/S)	E-W WIND (M/S)	N-S SHEAR (M/S/KM)	E-W SHEAR (M/S/KM)
93	56	1102	19	53	1	4
94	54	1110	20	57	2	14
95	60	1110	28	57	10	129
96	77	1104	1	75	20	1
97	77	1106	12	68	3	60
98	69	1066	12	63	1	57
99	88	98	1	87	2	149
100	83	1129	13	65	1	11
101	84	1129	29	60	1	14
102	77	1140	5	52	1	26
103	69	1152	3	38	1	10
104	42	1147	3	22	1	5
105	40	1147	4	22	1	2
106	40	1161	7	20	1	10
107	48	1181	0	14	1	5
108	64	1208	7	40	1	2
109	64	2245	0	34	1	1
110	55	2267	3	40	1	1
111	50	2267	0	52	1	1
112	50	2267	3	40	1	1
113	63	2294	0	44	1	1
114	67	2307	4	44	1	1
115	67	2310	5	53	1	1
116	67	2315	2	44	1	1
117	67	2324	4	44	1	1
118	67	2333	3	53	1	1
119	67	2335	3	53	1	1
120	67	2335	3	53	1	1
121	67	2335	3	53	1	1
122	67	2335	3	53	1	1
123	67	2335	3	53	1	1
124	67	2335	3	53	1	1
125	67	2335	3	53	1	1
126	67	2335	3	53	1	1
127	67	2335	3	53	1	1
128	67	2335	3	53	1	1
129	67	2335	3	53	1	1
130	67	2335	3	53	1	1
131	67	2335	3	53	1	1
132	67	2335	3	53	1	1
133	67	2335	3	53	1	1
134	67	2335	3	53	1	1
135	67	2335	3	53	1	1
136	67	2335	3	53	1	1
137	67	2335	3	53	1	1
138	67	2335	3	53	1	1
139	67	2335	3	53	1	1
140	67	2335	3	53	1	1
141	67	2335	3	53	1	1
142	67	2335	3	53	1	1
143	67	2335	3	53	1	1
144	67	2335	3	53	1	1
145	67	2335	3	53	1	1
146	67	2335	3	53	1	1
147	67	2335	3	53	1	1
148	67	2335	3	53	1	1
149	67	2335	3	53	1	1
150	67	2335	3	53	1	1
151	67	2335	3	53	1	1
152	67	2335	3	53	1	1
153	67	2335	3	53	1	1
154	67	2335	3	53	1	1
155	67	2335	3	53	1	1
156	67	2335	3	53	1	1
157	67	2335	3	53	1	1
158	67	2335	3	53	1	1
159	67	2335	3	53	1	1
160	67	2335	3	53	1	1
161	67	2335	3	53	1	1
162	67	2335	3	53	1	1
163	67	2335	3	53	1	1
164	67	2335	3	53	1	1
165	67	2335	3	53	1	1
166	67	2335	3	53	1	1
167	67	2335	3	53	1	1
168	67	2335	3	53	1	1
169	67	2335	3	53	1	1
170	67	2335	3	53	1	1
171	67	2335	3	53	1	1
172	67	2335	3	53	1	1
173	67	2335	3	53	1	1
174	67	2335	3	53	1	1
175	67	2335	3	53	1	1
176	67	2335	3	53	1	1
177	67	2335	3	53	1	1
178	67	2335	3	53	1	1
179	67	2335	3	53	1	1
180	67	2335	3	53	1	1
181	67	2335	3	53	1	1
182	67	2335	3	53	1	1
183	67	2335	3	53	1	1
184	67	2335	3	53	1	1
185	67	2335	3	53	1	1
186	67	2335	3	53	1	1
187	67	2335	3	53	1	1
188	67	2335	3	53	1	1
189	67	2335	3	53	1	1
190	67	2335	3	53	1	1
191	67	2335	3	53	1	1
192	67	2335	3	53	1	1
193	67	2335	3	53	1	1
194	67	2335	3	53	1	1
195	67	2335	3	53	1	1
196	67	2335	3	53	1	1
197	67	2335	3	53	1	1
198	67	2335	3	53	1	1
199	67	2335	3	53	1	1
200	67	2335	3	53	1	1

CODE NAME.. FLLA (U)

LAUNCH DATE.. 4/12/72 TIME.. 2045 CST

HEIGHT (KM)	SPEED (M/S)	HEADING (DEG)	N-S WIND (M/S)	E-W WIND (M/S)	N-S SHEAR (M/S/KM)	E-W SHEAR (M/S/KM)
*****	*****	*****	*****	*****	*****	*****
94	56	159	-52	20	-19	11
95	75	152	-71	24	-19	-9
96	84	177	-83	4	1	-23
97	68	184	-68	-5	24	13
98	49	158	-46	19	17	12
99	37	160	-35	13	9	-10
100	28	161	-26	9	6	1
101	24	147	-20	13	6	9
102	27	121	-14	24	3	9
103	33	120	-17	29	-7	3
104	40	126	-24	32	-4	5
105	41	138	-30	28	-18	-27
106	62	196	-60	-17	-33	-45
107	97	209	-85	-47	-15	-16
108	108	211	-93	-55	-6	-5
109	115	212	-98	-60	-2	-5
110	116	213	-97	-64	-1	-1
111	115	216	-93	-67	20	-10
112	97	235	-55	-80	47	-5
113	74	263	-9	-73	45	13
114	71	293	28	-65	23	-4
115	86	304	48	-71	34	9
116	103	332	91	-48	33	21
117	112	340	105	-39	7	5
118	117	345	113	-31	6	10
119	116	349	114	-21	-3	9
120	110	353	109	-14	-8	9
122	91	3	91	5	-7	5
124	84	5	84	7	-4	2
126	72	13	70	16	-10	4
128	48	21	45	17	-14	-1
130	19	43	14	13	-17	-3
132	21	161	-20	7	-13	-1
134	40	169	-39	8	-8	1
136	56	172	-55	7	-7	-1
138	69	176	-69	4	-7	-2
140	82	176	-82	6	-2	5
142	99	172	-85	13	-11	-6
144	117	184	-117	-8	-5	-2
146	103	179	-103	3	8	-2
148	100	185	-100	-9	-2	9
150	98	188	-97	-14	9	-56
152	199	248	-76	-184	3	-46
154	186	243	-85	-165	-3	13
156	122	245	-80	-175	-3	7
158	132	232	-81	-103	-3	3

CODE NAME.. FRED ( )

LAUNCH DATE.. 4/12/72 TIME.. 2315 CSI

HEIGHT (M)	SPEED (M/S)	HEADING (DEG)	N-S WIND (M/S)	E-W WIND (M/S)	N-S SHEAR (M/S/M)	E-W SHEAR (M/S/M)
*****	*****	*****	*****	*****	*****	*****
91	53	166	-51	13	-14	1
92	65	175	-65	6	-14	-23
93	80	198	-75	-24	-3	-20
94	77	204	-71	-31	9	-9
95	72	218	-55	-44	27	-7
96	44	249	-15	-41	51	5
97	34	302	13	-29	-8	23
98	17	194	-15	-4	-23	12
99	14	211	-12	-7	9	-5
100	16	215	-15	-9	-3	-4
101	17	219	-13	-11	-2	10
102	29	208	-25	-13	-26	-49
103	106	236	-50	-38	-24	-43
104	106	232	-65	-84	5	12
105	109	236	-61	-90	-1	-10
106	114	243	-52	-102	40	-25
107	128	275	10	-127	56	-2
108	114	290	39	-107	9	15
109	114	294	46	-104	17	13
110	105	312	70	-78	19	21
111	104	319	73	-69	5	5
112	105	325	85	-51	6	7
113	107	332	95	-50	20	21
114	116	351	115	-19	1	34
115	96	3	96	5	-20	11
116	89	4	83	6	-1	-4
117	84	3	84	4	-16	1
118	61	5	51	6	-19	1
119	47	6	47	6	-18	3
120	26	25	24	11	-21	4
122	10	33	5	8	-8	-4
124	16	163	-17	5	-11	2
126	33	168	-32	7	-6	-6
128	49	198	-47	-15	-9	-8
130	70	197	-57	-21	-10	-3
132	86	203	-79	-34	-1	-5
134	76	206	-58	-33	11	11
136	47	192	-45	-10	7	-1
138	58	220	-44	-37	-4	-14
140	74	225	-53	-52	-1	-5
142	78	235	-45	-54	3	-2
144	68	245	-29	-61	4	-2
146	76	249	-27	-71	3	-3
148	76	258	-15	-74	3	-5
150	90	261	-14	-89	3	-4
152	80	270	0	-80	3	11
154	53	284	13	-52	0	0

CODE NAME.. J-ADYS (J)			LAUNCH DATE.. 4/13/72		TIME.. 250 CSI	
HEIGHT (KM)	SPEED (M/S)	HEADING (DEG)	N-S WIND (M/S)	E-W WIND (M/S)	N-S SHEAR (M/S/KM)	E-W SHEAR (M/S/KM)
*****	*****	*****	*****	*****	*****	*****
90.1	26	207	-22	-11	25	14
92.4	24	46	17	17	1	9
94.7	10	109	-3	9	-3	-25
96.7	66	290	23	-62	25	-30
99.2	115	314	79	-83	6	5
101.3	90	322	70	-54	3	14
104.1	106	351	95	-15	-6	13
105.7	69	11	63	13	-23	10
108.1	26	28	23	12	-20	-2
112.4	71	170	-70	12	-15	-9
115.4	71	208	-40	-43	8	-6
120	55	216	-45	-33	8	2
123.2	56	227	-49	-41	1	-3
129.2	41	253	-12	-39	5	1
131.9	39	270	0	-39	-1	-10

CODE NAME..	HDPF (U)	LAUNCH DATE..	4/13/72	TIME..	430 CST	
HEIGHT (KM)	SPEED (M/S)	HEADING (DEG)	N-S WIND (M/S)	E-W WIND (M/S)	N-S SHEAR (M/S/KM)	E-W SHEAR (M/S/KM)
88	16	348	16	-3	-13	29
89	18	370	-11	17	-25	34
90	11	94	-31	11	-10	6
91	40	141	-157	125	-21	13
92	22	135	567	109	39	25
93	138	156	567	119	33	17
94	58	265	54	367	13	13
95	77	335	62	48	10	13
96	77	425	62	48	10	13
97	72	447	62	48	10	13
98	69	457	62	48	10	13
99	65	43	531	70	11	15
100	44	352	433	123	36	36
101	44	352	433	123	36	36
102	44	352	433	123	36	36
103	55	347	591	192	11	15
104	92	350	788	192	11	15
105	80	133	668	282	57	30
106	74	113	437	55	24	13
107	62	113	437	55	24	13
108	58	113	437	55	24	13
109	67	117	437	55	24	13
110	67	117	437	55	24	13
111	67	117	437	55	24	13
112	67	117	437	55	24	13
113	67	117	437	55	24	13
114	67	117	437	55	24	13
115	67	117	437	55	24	13
116	67	117	437	55	24	13
117	67	117	437	55	24	13
118	67	117	437	55	24	13
119	67	117	437	55	24	13
120	67	117	437	55	24	13
121	67	117	437	55	24	13
122	67	117	437	55	24	13
123	67	117	437	55	24	13
124	67	117	437	55	24	13
125	67	117	437	55	24	13
126	67	117	437	55	24	13
127	67	117	437	55	24	13
128	67	117	437	55	24	13
129	67	117	437	55	24	13
130	67	117	437	55	24	13
131	67	117	437	55	24	13
132	67	117	437	55	24	13
133	67	117	437	55	24	13
134	67	117	437	55	24	13
135	67	117	437	55	24	13
136	67	117	437	55	24	13



HOPE (U)	-CONTINUED-					
HEIGHT (KM)	SPEED (M/S)	HEADING (DEG)	N-S WIND (M/S)	E-W WIND (M/S)	N-S SHEAR (M/S/KM)	E-W SHEAR (M/S/KM)
137	81	281	15	79	1	-1
138	82	282	16	-80	1	-1
139	82	282	17	-80	1	0
140	83	282	17	-81	2	0
141	84	283	19	-81	3	0
142	84	284	16	-82	3	0
143	83	281	16	-82	3	0
144	84	281	16	-82	3	0
145	84	281	16	-82	3	0
146	84	281	13	-83	3	0
147	85	279	13	-84	3	0
148	86	279	13	-85	1	0
149	87	279	13	-87	0	0
150	88	278	12	-88	0	0
151	88	278	12	-89	0	0
152	90	276	12	-90	0	0
153	90	276	11	-91	0	0
154	91	276	10	-91	0	0
155	92	276	9	-91	0	0
156	92	276	9	-92	0	0
157	92	276	9	-93	0	0
158	93	275	9	-94	0	0
159	94	275	9	-94	0	0
160	94	274	9	-94	0	0
161	97	273	9	-97	0	0
162	97	272	9	-98	0	0
163	98	271	9	-98	0	0
164	99	271	9	-98	0	0
165	99	272	9	-97	0	0
166	97	270	10	-97	0	0
167	98	269	10	-98	0	0
168	98	269	10	-98	0	0
169	100	267	10	-100	0	0
170	100	267	10	-100	0	0
171	101	266	7	-100	0	0
172	101	266	6	-100	0	0
173	101	266	6	-100	0	0
174	101	266	6	-100	0	0
175	101	266	6	-100	0	0
176	101	266	6	-100	0	0
177	101	266	6	-100	0	0
178	101	266	6	-100	0	0
179	101	266	6	-100	0	0
180	101	266	6	-100	0	0
181	101	266	6	-100	0	0
182	101	266	6	-100	0	0
183	101	266	6	-100	0	0
184	101	266	6	-100	0	0

CODE NAME..	KATHY (CD)	LAUNCH DATE..	10/31/72	TIME..	1732	CST
HEIGHT	SPEED	HEADING	N-S WIND	E-W WIND	N-S SHEAR	E-W SHEAR
(KMH)	(KMH)	(DEG)	(M/S)	(M/S)	(M/S)	(M/S)
***	***	***	***	***	***	***
80	57	101	41	39	42	20
80	55	101	11	54	0	3
90	49	116	28	24	9	10
91	30	112	18	7	0	2
92	15	153	13	5	0	1
93	10	161	4	9	3	0
94	10	144	4	9	0	0
95	10	111	4	9	0	0
96	10	103	4	9	0	0
97	15	157	3	16	0	0
98	18	119	1	13	0	0
99	25	175	5	27	0	0
100	41	204	7	18	0	0
101	45	203	15	19	0	0
102	45	204	27	29	0	0
103	45	203	45	38	0	0
104	45	236	57	43	0	0
105	44	267	62	46	0	0
106	44	295	75	48	0	0
107	44	327	81	48	0	0
108	44	367	91	46	0	0
109	44	409	115	46	0	0
110	46	450	145	48	0	0
111	50	478	195	50	0	0
112	50	505	227	53	0	0
113	70	550	282	61	0	0
114	70	580	302	61	0	0
115	66	600	311	61	0	0
116	62	628	332	66	0	0
117	62	650	357	72	0	0
118	66	681	381	76	0	0
119	79	729	413	79	0	0
120	85	781	444	83	0	0
121	88	806	454	84	0	0
122	88	835	454	84	0	0
123	88	867	454	84	0	0
124	84	892	454	84	0	0
125	84	919	454	84	0	0
126	76	941	454	84	0	0
127	63	968	454	84	0	0
128	59	991	454	84	0	0
129	55	1018	454	84	0	0
130	55	1048	454	84	0	0
131	46	1074	454	84	0	0
132	38	1101	454	84	0	0
133	38	1127	454	84	0	0
134	38	1154	454	84	0	0
135	38	1181	454	84	0	0
136	38	1208	454	84	0	0
137	38	1235	454	84	0	0
138	38	1262	454	84	0	0
139	38	1289	454	84	0	0
140	38	1316	454	84	0	0
141	38	1343	454	84	0	0
142	38	1370	454	84	0	0
143	38	1397	454	84	0	0
144	38	1424	454	84	0	0
145	38	1451	454	84	0	0
146	38	1478	454	84	0	0
147	38	1505	454	84	0	0
148	38	1532	454	84	0	0
149	38	1559	454	84	0	0
150	38	1586	454	84	0	0
151	38	1613	454	84	0	0
152	38	1640	454	84	0	0
153	38	1667	454	84	0	0
154	38	1694	454	84	0	0
155	38	1721	454	84	0	0
156	38	1748	454	84	0	0
157	38	1775	454	84	0	0
158	38	1802	454	84	0	0
159	38	1829	454	84	0	0
160	38	1856	454	84	0	0
161	38	1883	454	84	0	0
162	38	1910	454	84	0	0
163	38	1937	454	84	0	0
164	38	1964	454	84	0	0
165	38	1991	454	84	0	0
166	38	2018	454	84	0	0
167	38	2045	454	84	0	0
168	38	2072	454	84	0	0
169	38	2099	454	84	0	0
170	38	2126	454	84	0	0
171	38	2153	454	84	0	0
172	38	2180	454	84	0	0
173	38	2207	454	84	0	0
174	38	2234	454	84	0	0
175	38	2261	454	84	0	0
176	38	2288	454	84	0	0
177	38	2315	454	84	0	0
178	38	2342	454	84	0	0
179	38	2369	454	84	0	0
180	38	2396	454	84	0	0
181	38	2423	454	84	0	0
182	38	2450	454	84	0	0
183	38	2477	454	84	0	0
184	38	2504	454	84	0	0
185	38	2531	454	84	0	0
186	38	2558	454	84	0	0
187	38	2585	454	84	0	0
188	38	2612	454	84	0	0
189	38	2639	454	84	0	0
190	38	2666	454	84	0	0
191	38	2693	454	84	0	0
192	38	2720	454	84	0	0
193	38	2747	454	84	0	0
194	38	2774	454	84	0	0
195	38	2801	454	84	0	0
196	38	2828	454	84	0	0
197	38	2855	454	84	0	0
198	38	2882	454	84	0	0
199	38	2909	454	84	0	0
200	38	2936	454	84	0	0

CODE NAME	LANA (U)	LAUNCH DATE	10/31/72	TIME	1751	CST
HEIGHT (KM)	SPEED (M/S)	HEADING (DEG)	N-S WIND (M/S)	E-W WIND (M/S)	N-S SHEAR (M/S/KM)	E-W SHEAR (M/S/KM)
90	36	121	9	31	3	-11
91	26	121	15	21	4	-19
92	17	129	11	13	5	-6
93	9	125	15	7	2	-6
94	4	106	1	3	1	-1
95	5	96	1	5	1	-1
96	5	73	1	5	3	-2
97	6	34	5	3	4	-3
98	8	1	8	2	0	-16
99	12	14	12	18	5	-11
100	18	61	4	8	8	-11
101	5	22	14	8	5	-12
102	9	10	5	8	7	-14
103	6	20	2	9	3	-13
104	8	22	1	6	2	-14
105	6	22	2	5	9	-12
106	7	22	5	7	0	-17
107	6	22	2	6	4	-13
108	7	22	5	6	3	-11
109	6	22	2	7	2	-11
110	7	22	3	4	1	-13
111	7	22	2	3	0	-20
112	8	22	2	7	0	-3
113	8	22	5	8	0	-3
114	8	22	5	8	0	-3
115	8	22	5	8	0	-3
116	7	22	5	6	1	-4
117	7	22	5	6	2	-4
118	7	22	5	6	2	-4
119	7	22	5	6	2	-4
120	7	22	5	6	2	-4
121	7	22	5	6	2	-4
122	7	22	5	6	2	-4
123	7	22	5	6	2	-4
124	7	22	5	6	2	-4
125	7	22	5	6	2	-4
126	7	22	5	6	2	-4
127	7	22	5	6	2	-4
128	7	22	5	6	2	-4
129	7	22	5	6	2	-4
130	7	22	5	6	2	-4
131	7	22	5	6	2	-4
132	7	22	5	6	2	-4
133	7	22	5	6	2	-4
134	7	22	5	6	2	-4
135	7	22	5	6	2	-4
136	7	22	5	6	2	-4
137	7	22	5	6	2	-4
138	7	22	5	6	2	-4
139	7	22	5	6	2	-4
140	7	22	5	6	2	-4
141	7	22	5	6	2	-4
142	7	22	5	6	2	-4
143	7	22	5	6	2	-4
144	7	22	5	6	2	-4
145	7	22	5	6	2	-4

CODE NAME.. KAY (U)

LAUNCH DATE.. 5/17/71 TIME.. 2002 CDT

HEIGHT (KM)	SPEED (M/S)	HEADING (DEG)	N-S WIND (M/S)	E-W WIND (M/S)	VERT WIND (M/S)
↓*****	*****	*****	*****	*****	*****
79.3	27	160	-26	9	3
81.1	44	194	-42	-11	-2
81.6	42	219	-33	-26	-4
85.4	57	45	40	40	0
91.5	77	79	14	76	-2

CODE NAME.. KAY (D)

LAUNCH DATE.. 5/17/71 TIME.. 2002 CDT

HEIGHT (KM)	SPEED (M/S)	HEADING (DEG)	N-S WIND (M/S)	E-W WIND (M/S)	VERT WIND (M/S)
*****	*****	*****	*****	*****	*****
94.6	23	123	-10	16	12
96.6	23	94	-1	20	10
98.2	56	90	1	54	15
100.0	67	106	-18	62	16
102.2	103	120	-51	88	17
105.5	66	133	-45	48	-2
107.5	15	32	13	8	-1
111.7	126	351	124	-20	10
117.5	54	349	50	-10	18
122.5	56	211	-46	-28	12
127.1	89	219	-69	-55	7
131.5	122	234	-72	-98	1
136.5	149	239	-77	-127	0
145.1	167	240	-84	-144	13

CODE NAME.. LYNN (U)

LAUNCH DATE.. 5/17/71 TIME.. 2002 CDT

HEIGHT (KM)	SPEED (M/S)	HEADING (DEG)	N-S WIND (M/S)	E-W WIND (M/S)	VERT WIND (M/S)
*****	*****	*****	*****	*****	*****
77.4	7	3	7	0	2
81.5	44	193	-43	-10	0
87.9	84	41	63	56	3
91.2	85	83	10	82	6
97.5	39	77	8	32	21
106.2	49	139	-35	31	14
125.1	56	219	-43	-35	0

CODE NAME.. LYNN (D)

LAUNCH DATE.. 5/17/71 TIME.. 2002 CDT

HEIGHT (KM)	SPEED (M/S)	HEADING (DEG)	N-S WIND (M/S)	E-W WIND (M/S)	VERT WIND (M/S)
*****	*****	*****	*****	*****	*****
84.1	11	195	-7	-2	8
87.5	81	47	55	60	0
90.6	64	70	21	59	-13
93.9	32	113	-11	27	13
97.4	54	82	7	48	24
100.5	81	106	-19	69	38
105.9	56	126	-32	45	15
112.7	144	353	127	-16	65
115.9	89	356	89	-7	7
120.5	35	235	-8	-11	32
124.5	59	215	-48	-33	-3
128.4	91	223	-66	-63	-1
132.1	117	236	-65	-97	-5

CODE NAME.. MARY (U) LAUNCH DATE.. 5/17/71 TIME.. 2106 CDT

HEIGHT (KM)	SPEED (M/S)	HEADING (DEG)	N-S WIND (M/S)	E-W WIND (M/S)	VERT WIND (M/S)
*****	*****	*****	*****	*****	*****
94.2	45	118	-18	35	17
97.0	45	112	-16	40	5
98.7	79	109	-26	73	6
110.9	27	14	21	5	16
122.9	16	288	5	-15	-1

CODE NAME.. ORA (U) LAUNCH DATE.. 5/17/71 TIME.. 2205 CDT

HEIGHT (KM)	SPEED (M/S)	HEADING (DEG)	N-S WIND (M/S)	E-W WIND (M/S)	VERT WIND (M/S)
*****	*****	*****	*****	*****	*****
92.4	57	121	-28	47	17
95.2	29	84	3	26	13
101.5	55	89	1	53	14
104.4	57	109	-18	53	9
107.5	96	339	84	-32	33
110.6	86	349	82	-17	29
113.5	76	353	71	-9	31
115.9	27	290	6	-16	21
118.9	66	237	-37	-57	5
121.2	125	237	-67	-105	4
123.7	154	248	-56	-140	30

CODE NAME.. PAM (U) LAUNCH DATE.. 5/18/71 TIME.. 0340 CDT

HEIGHT (KM)	SPEED (M/S)	HEADING (DEG)	N-S WIND (M/S)	E-W WIND (M/S)	VERT WIND (M/S)
*****	*****	*****	*****	*****	*****
97.4	81	77	18	77	18
104.5	31	160	-27	10	14
109.7	108	278	16	-107	-3
115.4	150	286	44	-152	-2
120.5	145	275	13	-144	-3
134.5	145	244	-64	-128	-6
142.5	179	240	-91	-154	6
148.0	210	239	-109	-179	7
152.0	202	247	-78	-185	-28

CODE NAME.. QUANTA (U) LAUNCH DATE.. 5/18/71 TIME.. 2014 CDT

HEIGHT (KM)	SPEED (M/S)	HEADING (DEG)	N-S WIND (M/S)	E-W WIND (M/S)	VERT WIND (M/S)
*****	*****	*****	*****	*****	*****
121.9	54	331	47	-26	5
129.5	27	155	-12	6	-23
137.1	69	172	-68	10	5

CODE NAME.. QUANTA (U) LAUNCH DATE.. 5/18/71 TIME.. 2014 CDT

HEIGHT (KM)	SPEED (M/S)	HEADING (DEG)	N-S WIND (M/S)	E-W WIND (M/S)	VERT WIND (M/S)
*****	*****	*****	*****	*****	*****
125.0	24	142	-10	13	12
127.2	51	22	29	12	-40
128.2	19	134	-5	5	-17
128.5	20	160	-12	4	-16
128.4	25	133	-10	11	-20

CODE NAME.. LONES (U) LAUNCH DATE.. 4/ 5/72 TIME.. 1835 CST

HEIGHT (KM)	SPEED (M/S)	HEADING (DEG)	N-S WIND (M/S)	E-W WIND (M/S)	VERT WIND (M/S)
* ****	* ****	* ****	* ****	* ****	* ****
130.0	04	56	38	55	18
154.7	108	161	-102	35	-5

CODE NAME.. BARBARA (D) LAUNCH DATE.. 4/10/72 TIME.. 1838 CST

HEIGHT (KM)	SPEED (M/S)	HEADING (DEG)	N-S WIND (M/S)	E-W WIND (M/S)	VERT WIND (M/S)
* ****	* ****	* ****	* ****	* ****	* ****
84.4	39	252	-5	-38	-4
86.2	51	148	-43	27	3
97.9	94	216	-75	-55	9
99.4	06	08	24	59	12
106.7	92	101	-19	90	4

CODE NAME.. CLARA (D) LAUNCH DATE.. 4/12/72 TIME.. 1843 CST

HEIGHT (KM)	SPEED (M/S)	HEADING (DEG)	N-S WIND (M/S)	E-W WIND (M/S)	VERT WIND (M/S)
* ****	* ****	* ****	* ****	* ****	* ****
104.0	103	190	-33	-5	-08
112.1	04	235	-34	-48	25
118.9	26	324	75	-55	20
124.4	72	339	60	-23	32
131.7	10	305	3	-4	-17
136.5	44	170	-43	8	6
146.3	07	160	-61	23	-13
155.6	113	157	-99	41	-36
162.5	127	153	-117	36	-74
166.0	147	158	-136	55	-9



CODE NAME.. JOPE (J) LAUNCH DATE.. 4/13/72 TIME.. 0430 CST

HEIGHT (KM)	SPEED (M/S)	HEADING (DEG)	N-S WIND (M/S)	E-W WIND (M/S)	VERT WIND (M/S)
*****	*****	*****	*****	*****	*****
127.9	13	226	-55	-56	-1.3
128.9	71	265	-7	-74	8
135.1	75	266	-9	-76	-9
141.4	82	274	6	-82	2
152.7	87	271	1	-87	3
161.8	94	270	0	-93	5
166.7	93	269	-2	-92	8
173.8	79	270	4	-96	19

CODE NAME.. INGRID (J) LAUNCH DATE.. 4/14/72 TIME.. 1845 CST

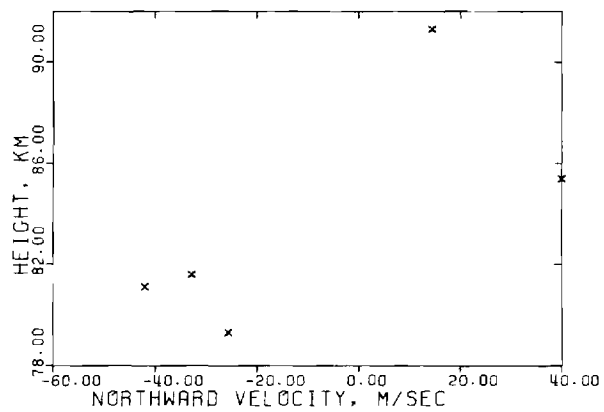
HEIGHT (KM)	SPEED (M/S)	HEADING (DEG)	N-S WIND (M/S)	E-W WIND (M/S)	VERT WIND (M/S)
*****	*****	*****	*****	*****	*****
82.4	37	9	36	6	4
96.3	61	47	2	43	-43
91.4	41	170	-40	7	-2
96.7	111	27	99	56	4
101.2	124	30	-5	126	2
106.8	49	171	-44	7	4
114.1	55	166	-63	14	0
124.4	54	272	3	-69	-2
127.9	5	278	9	-67	-1
131.9	5	271	1	-50	6

CODE NAME.. JANE (J) LAUNCH DATE.. 4/14/72 TIME.. 1904 CST

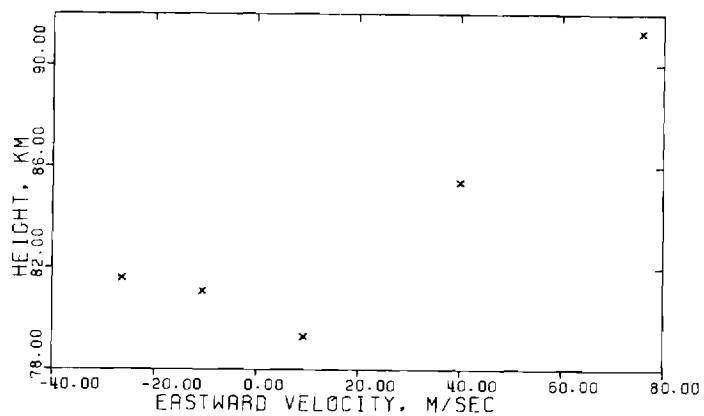
HEIGHT (KM)	SPEED (M/S)	HEADING (DEG)	N-S WIND (M/S)	E-W WIND (M/S)	VERT WIND (M/S)
*****	*****	*****	*****	*****	*****
163.2	127	165	-93	25	22
194.4	71	135	-52	50	-8

CODE NAME.. KATHY (D)      LAUNCH DATE.. 10/31/72    TIME.. 1732 CST

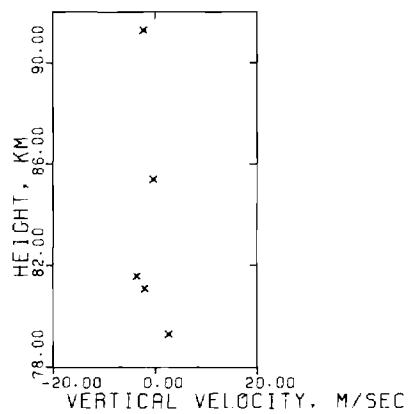
HEIGHT (KM)	SPEED (M/S)	HEADING (DEG)	N-S WIND (M/S)	E-W WIND (M/S)	VERT WIND (M/S)
*****	*****	*****	*****	*****	*****
91.0	44	110	-15	40	10
101.0	62	196	-64	-18	19
106.0	40	286	10	-34	19
111.0	70	213	-54	-42	14
115.0	70	254	-20	-67	8



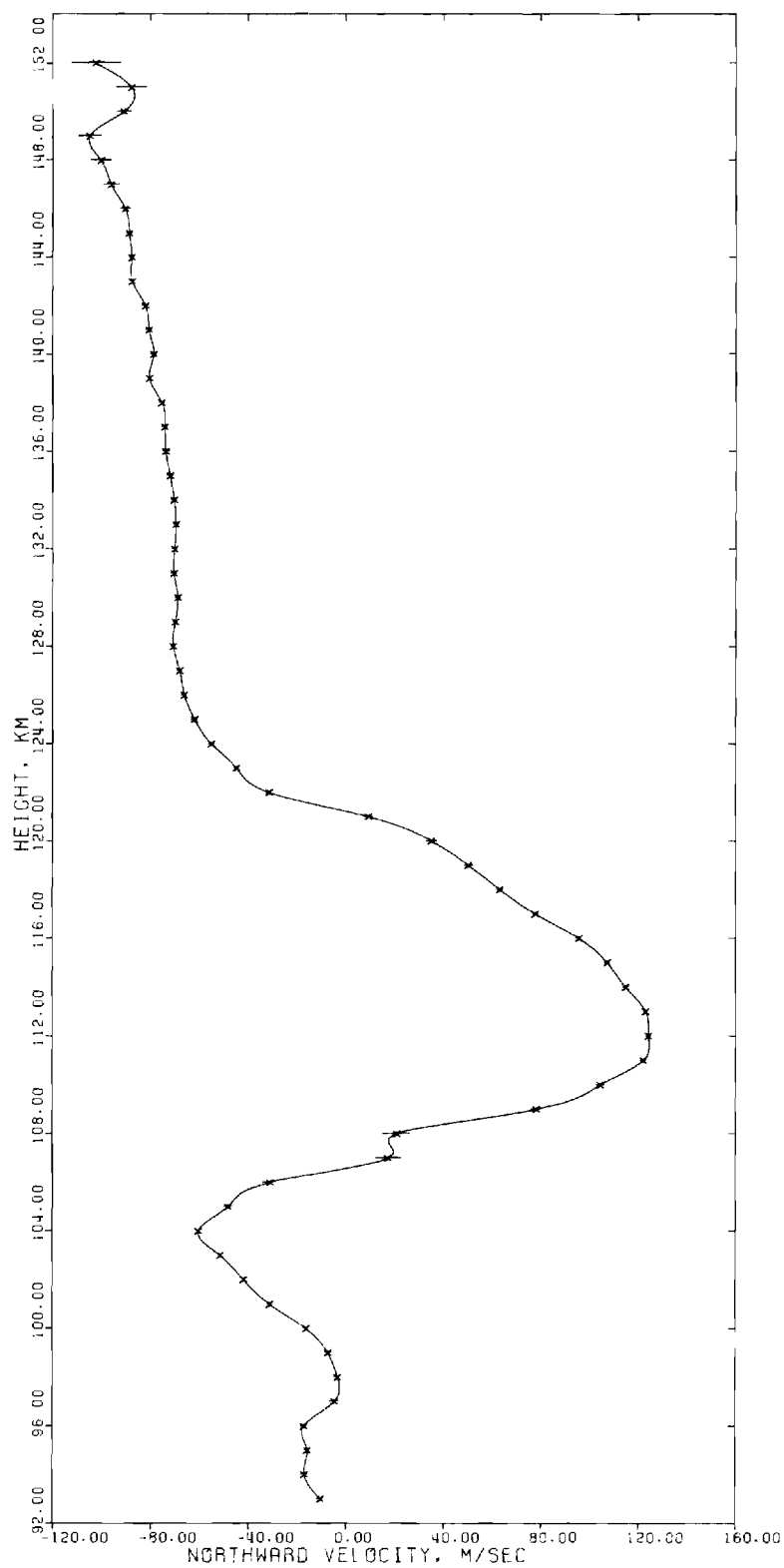
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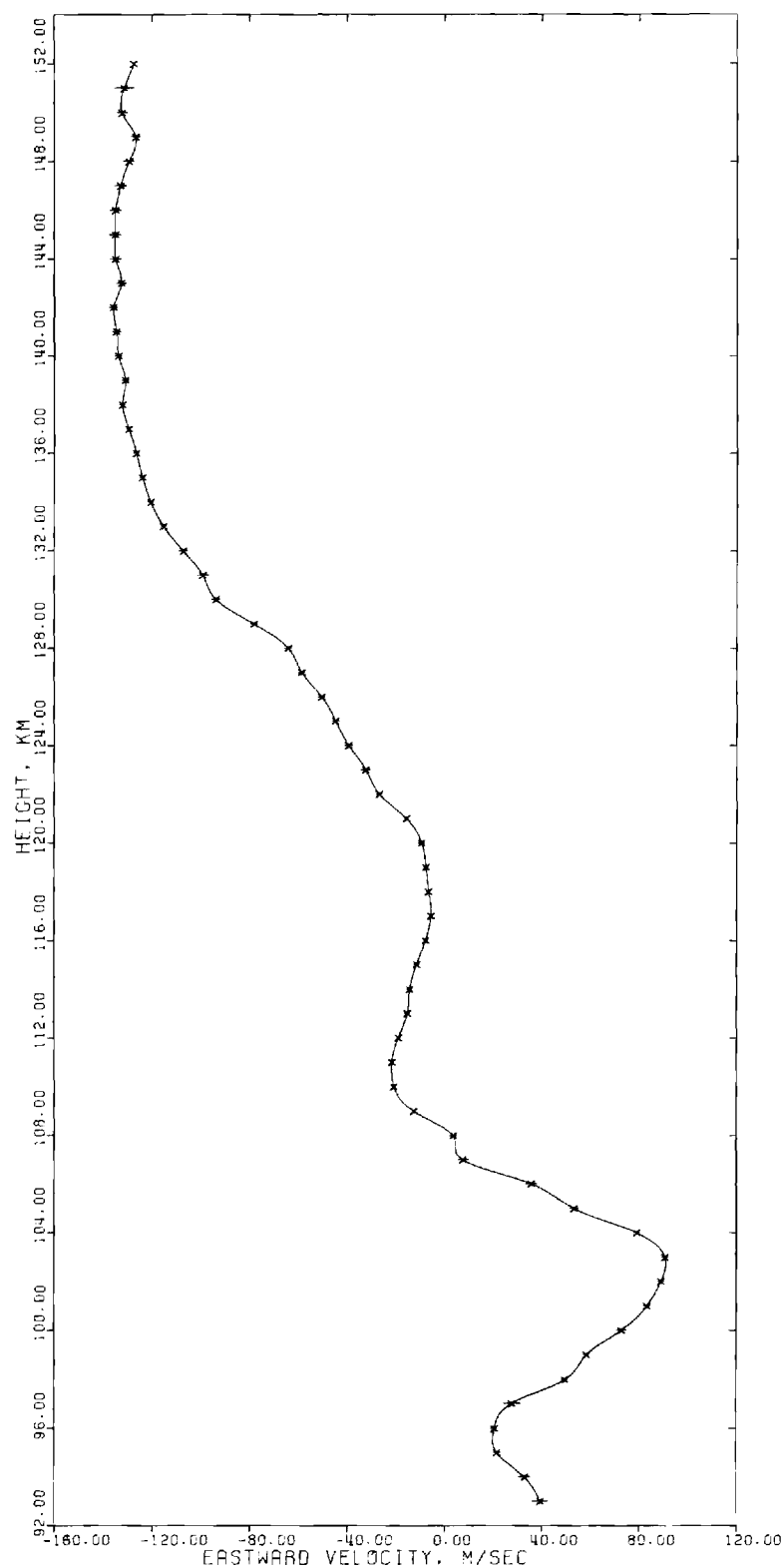
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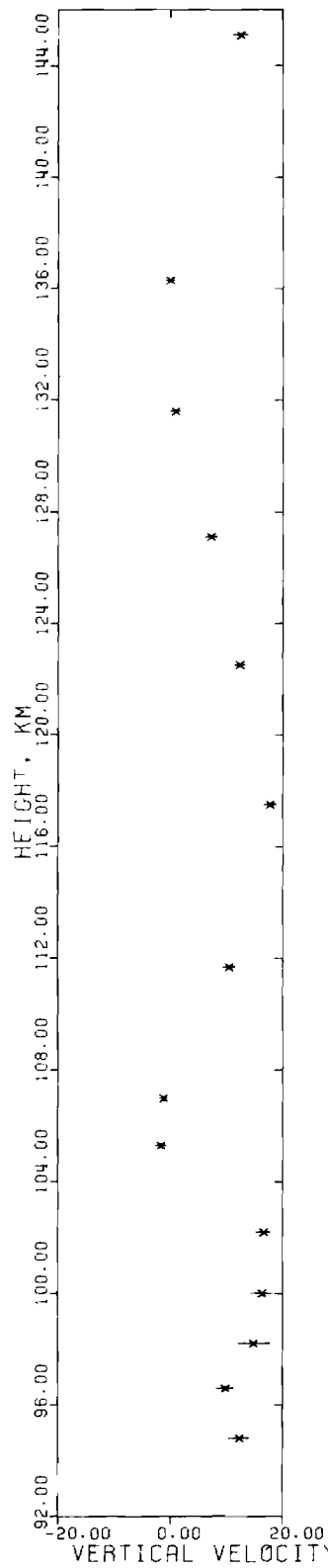
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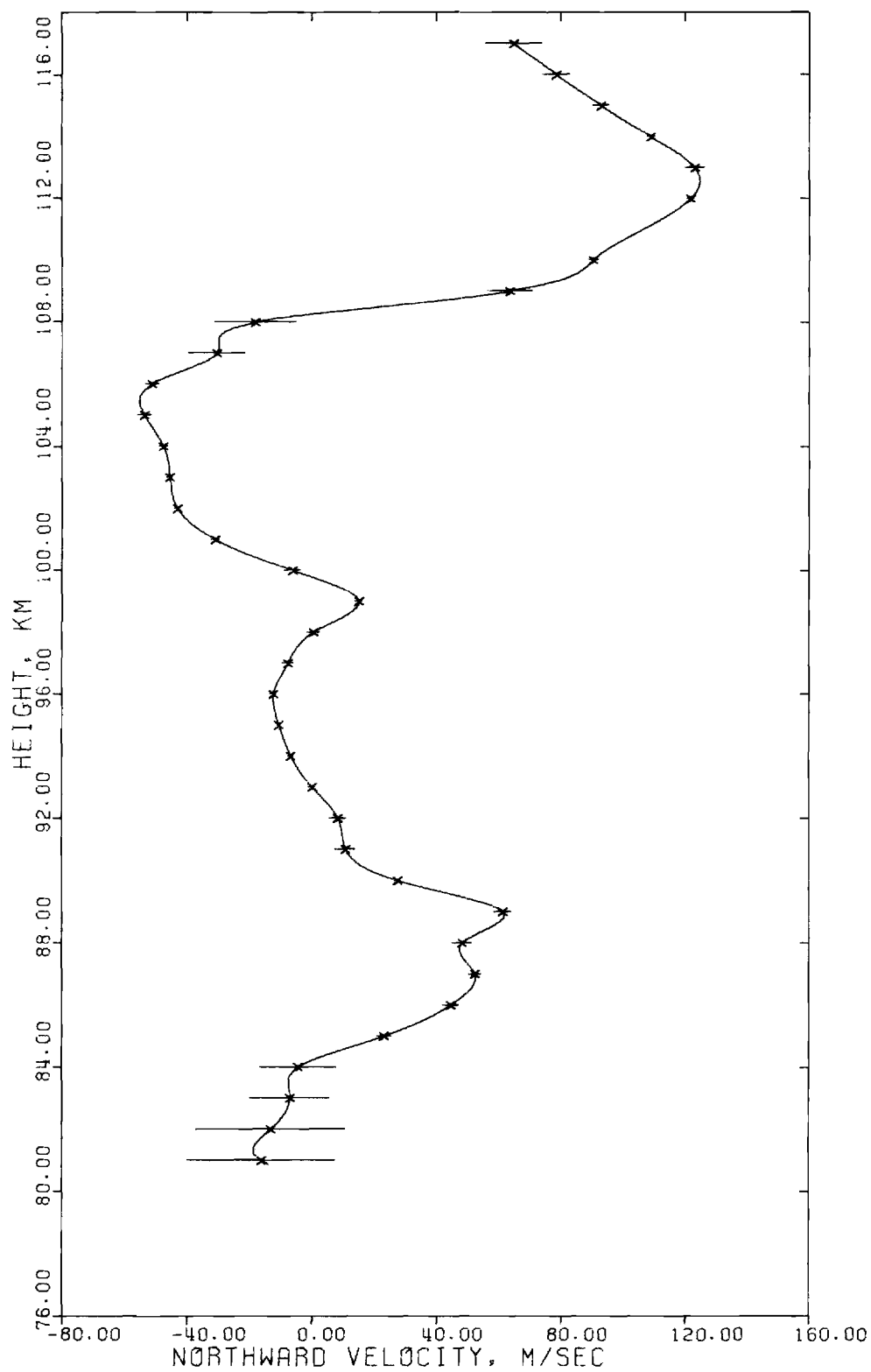
KAY 1 [DOWN] TRAIL WINDS 1971.4 5/17/71 2002 CDT AG



KAY 1 [DOWN] TRAIL WINDS 1971.4 5/17/71 2002 COT AG



KAY 1 [DOWN] POINT WINDS 1971.4 5/17/71 2002 CDT AG

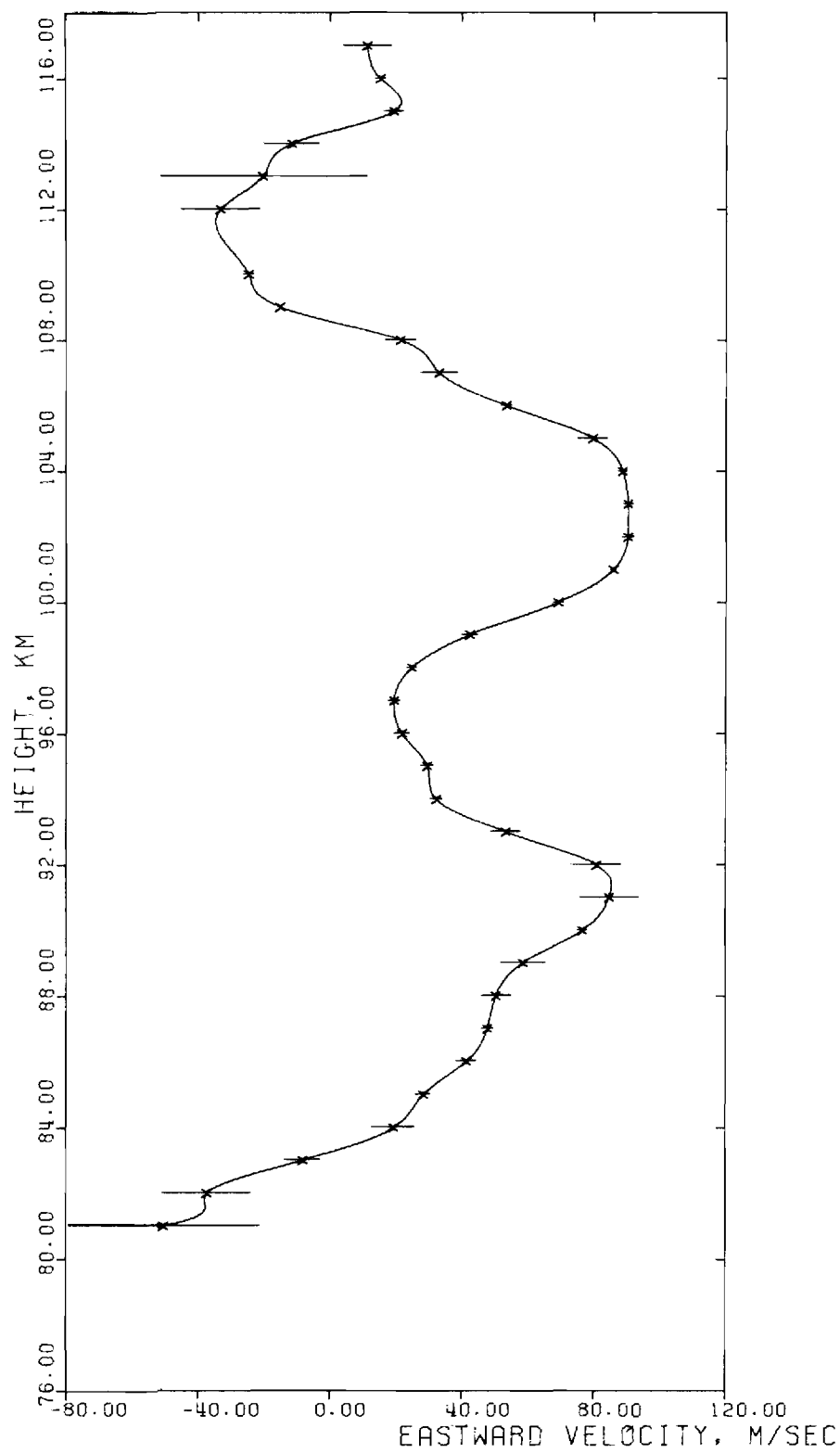


LYNN 2 [CUP]

TRAIL WINDS 1971.4

5/17/71

2002 COT AG



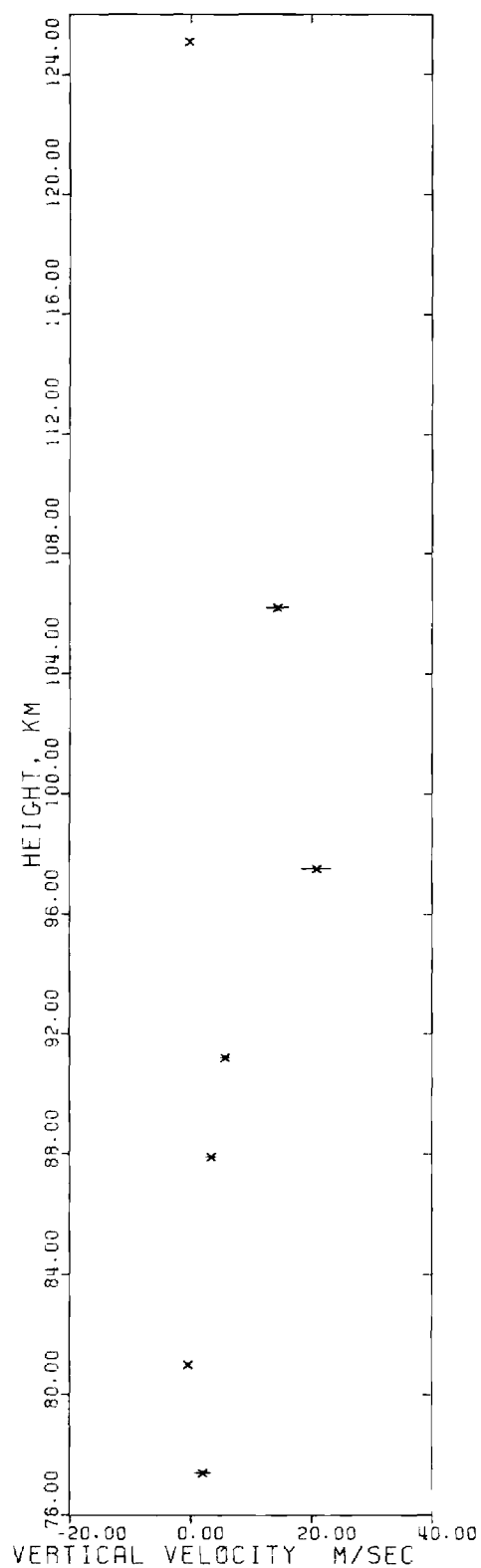
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TRAIL WINDS 1971.4

5/17/71

2002 CDT AG

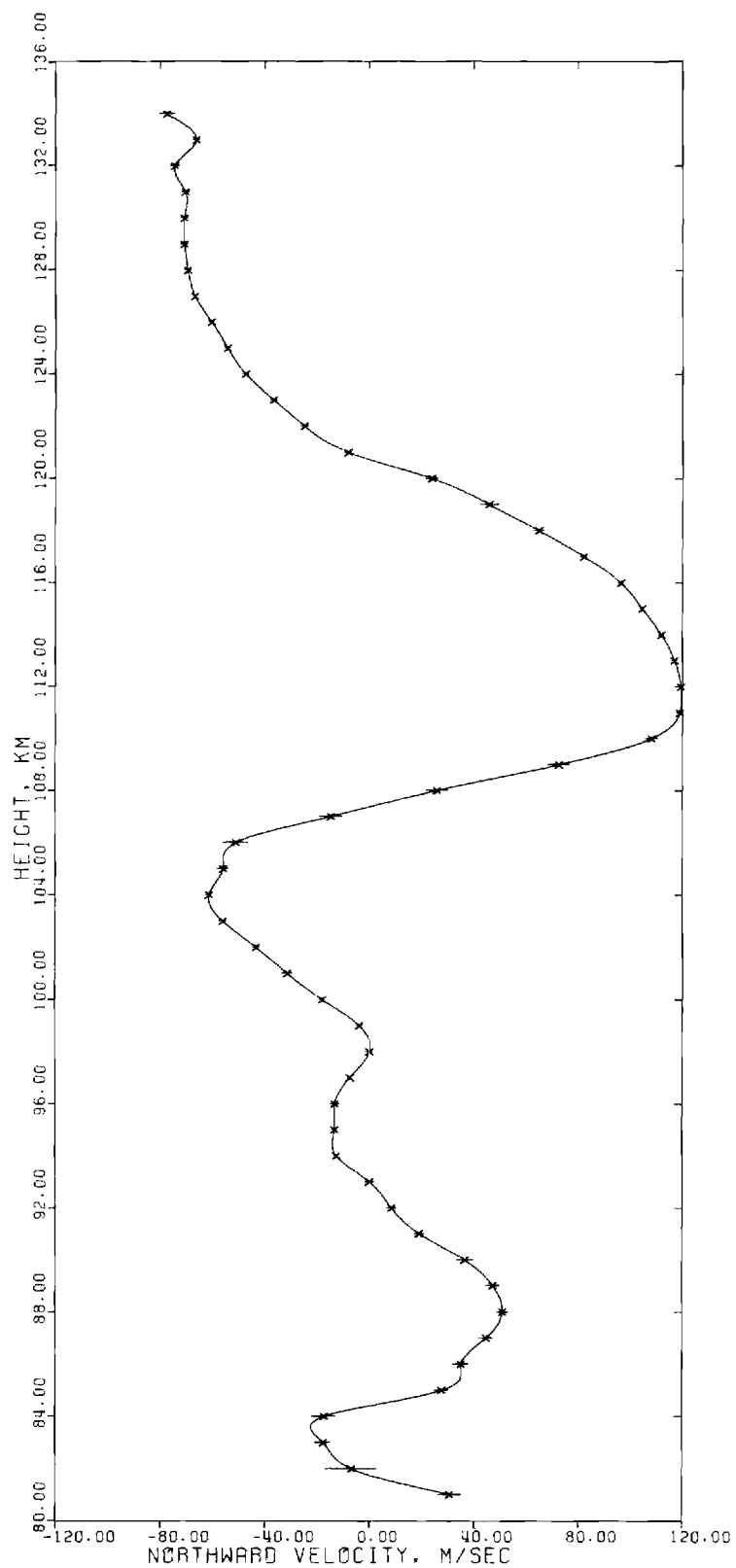




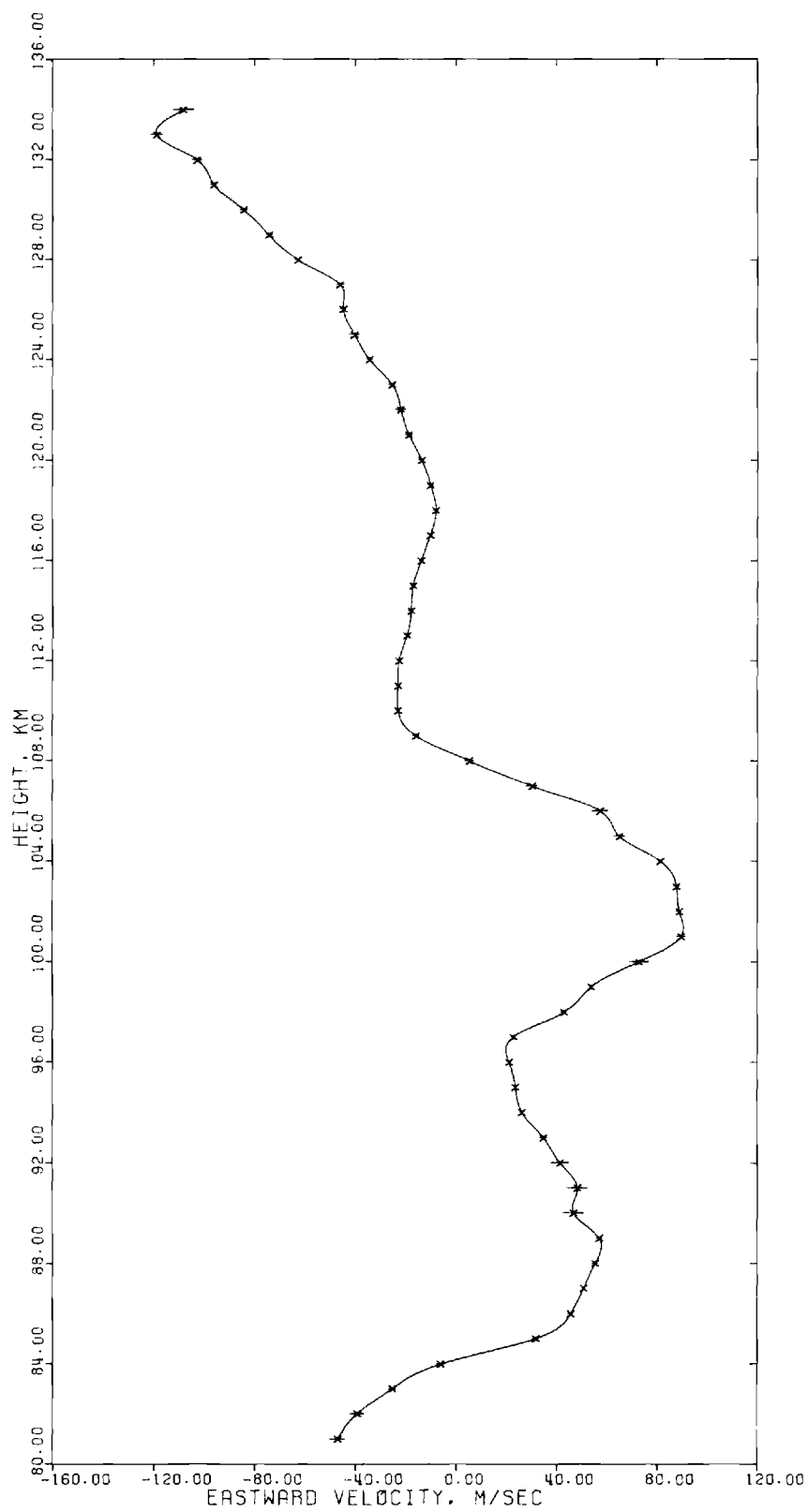
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POINT WINDS 1971.4

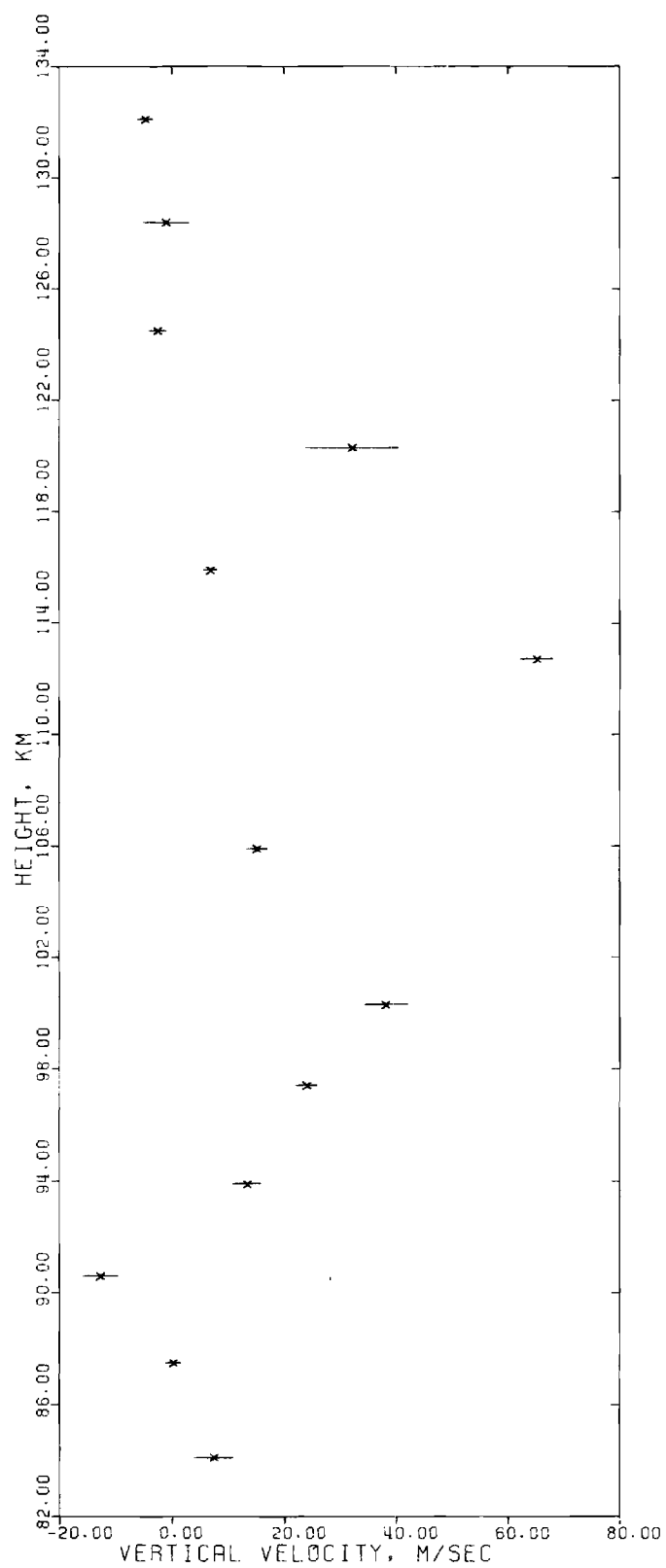
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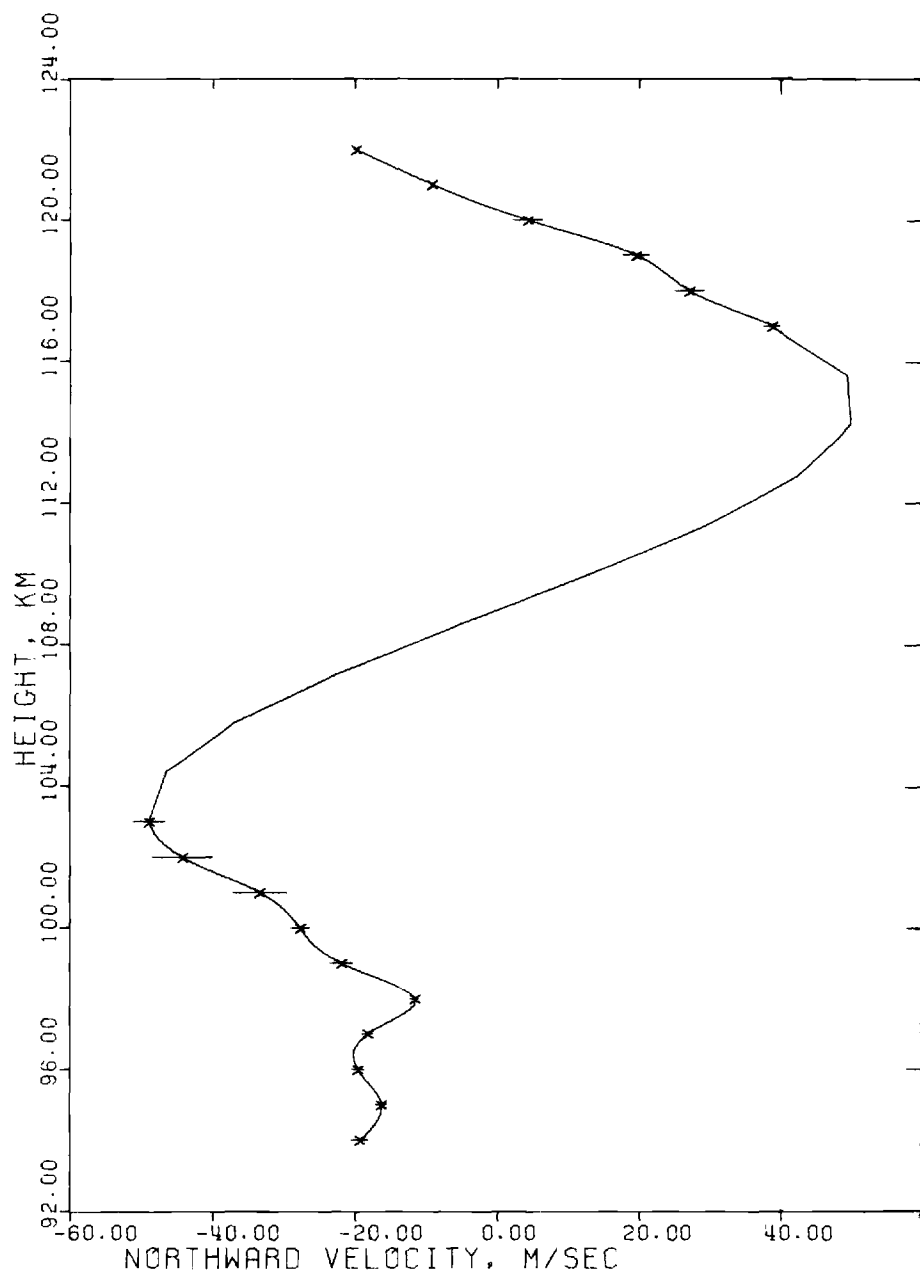
LYNN 2 (DOWN) TRAIL WINDS 1971.4 5/17/71 2002 CDT AG



LYNN 2 [DOWN] TRAIL WINDS 1971.4 5/17/71 2002 CDT AG



LYNN 2 (DOWN) POINT WINDS 1971.4 5/17/71 2002 CDT AG

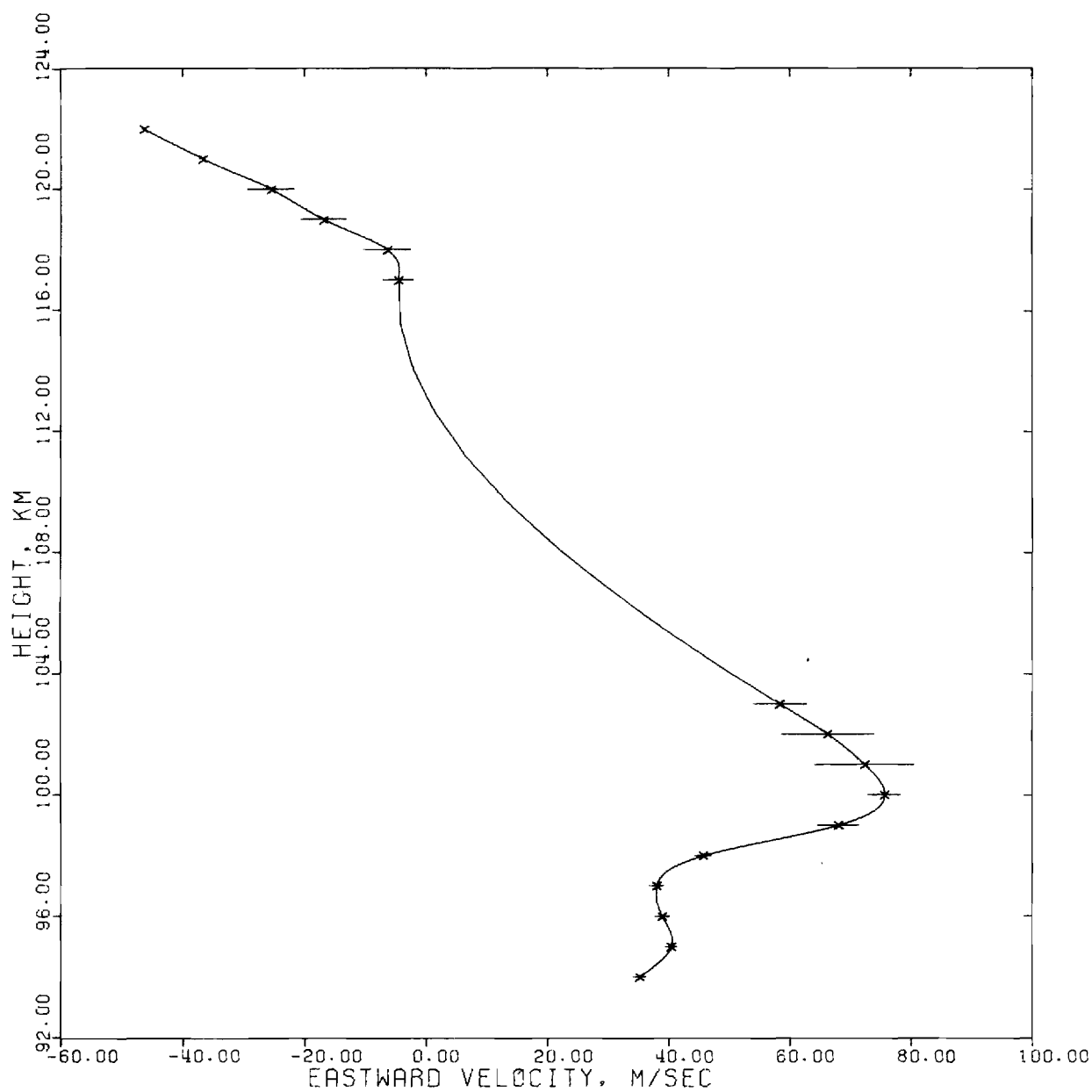


MARY 3 [UP]

TRAIL WINDS 1971.4

5/17/71

2106 CDT AG

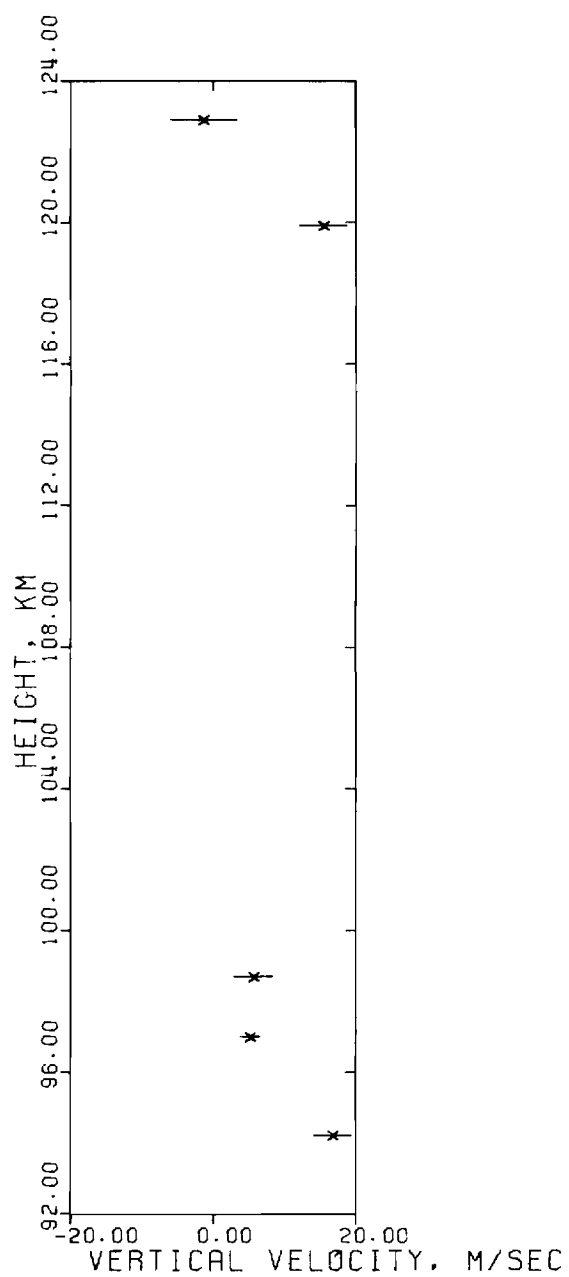


MARY 3 [UP]

TRAIL WINDS 1971.4

5/17/71

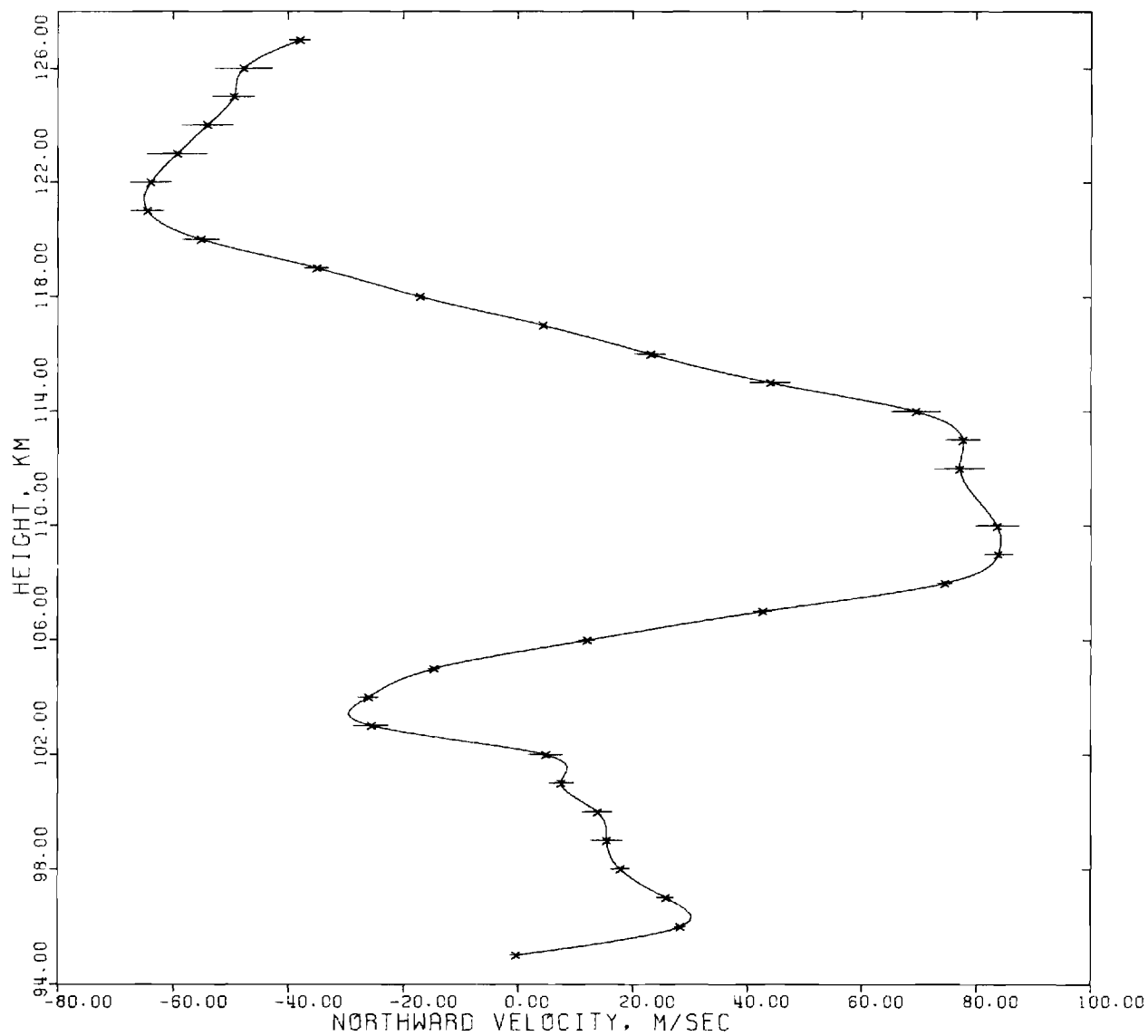
2106 CDT AG



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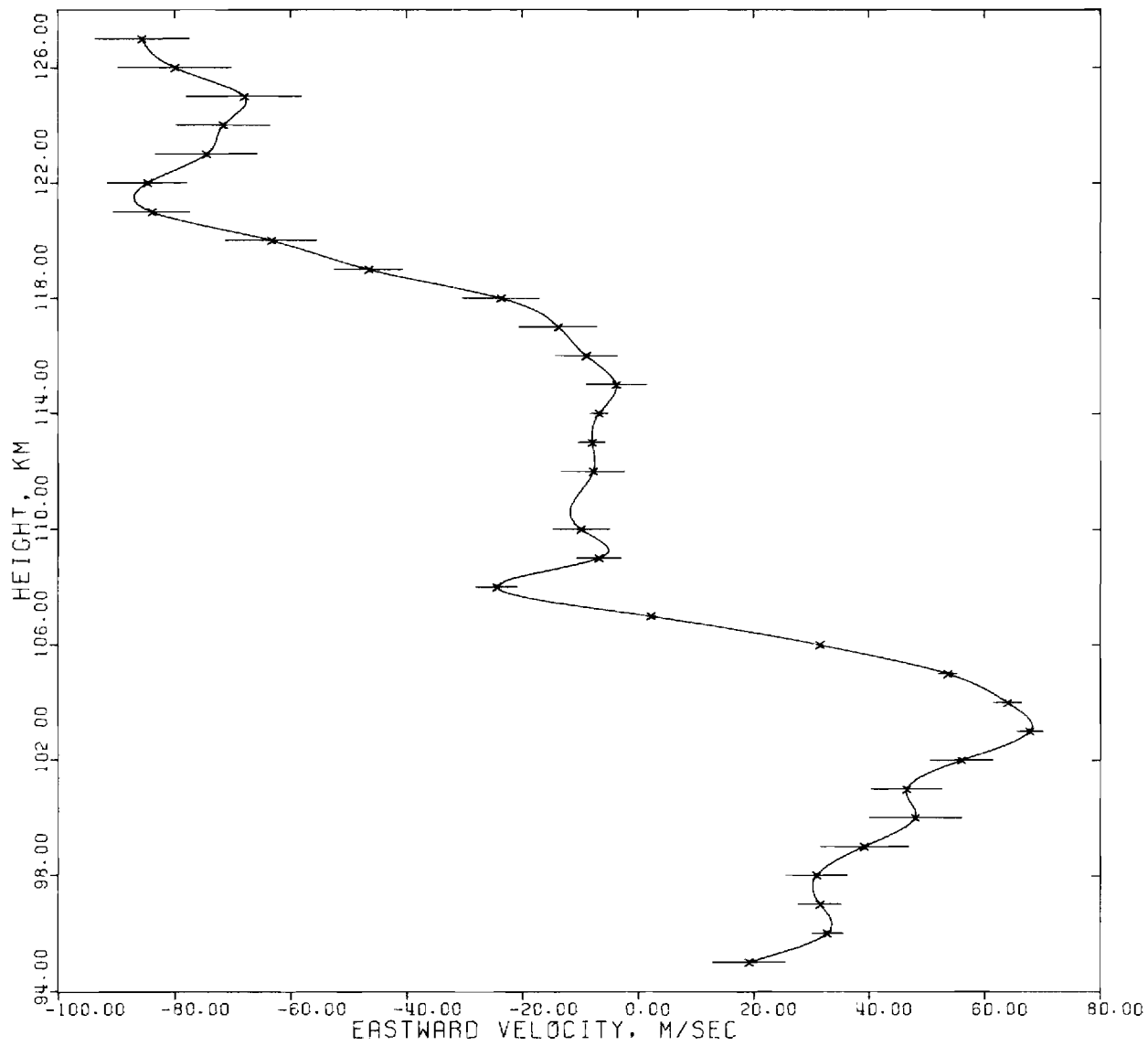
POINT WINDS 1971.4

5/17/71 2106 CDT AG



ORA 5 [UP] TRAIL WINDS 1971.4 5/17/71 2205 CDT AG

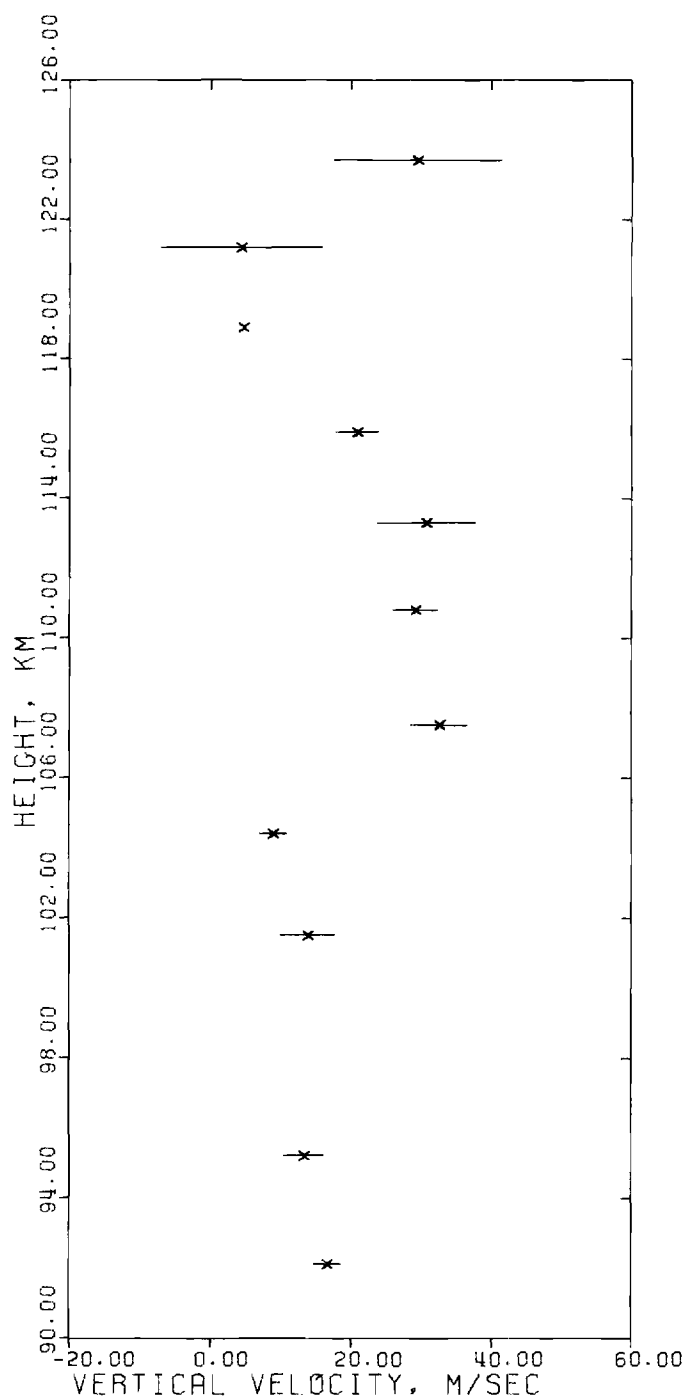




ORA 5 [UP]

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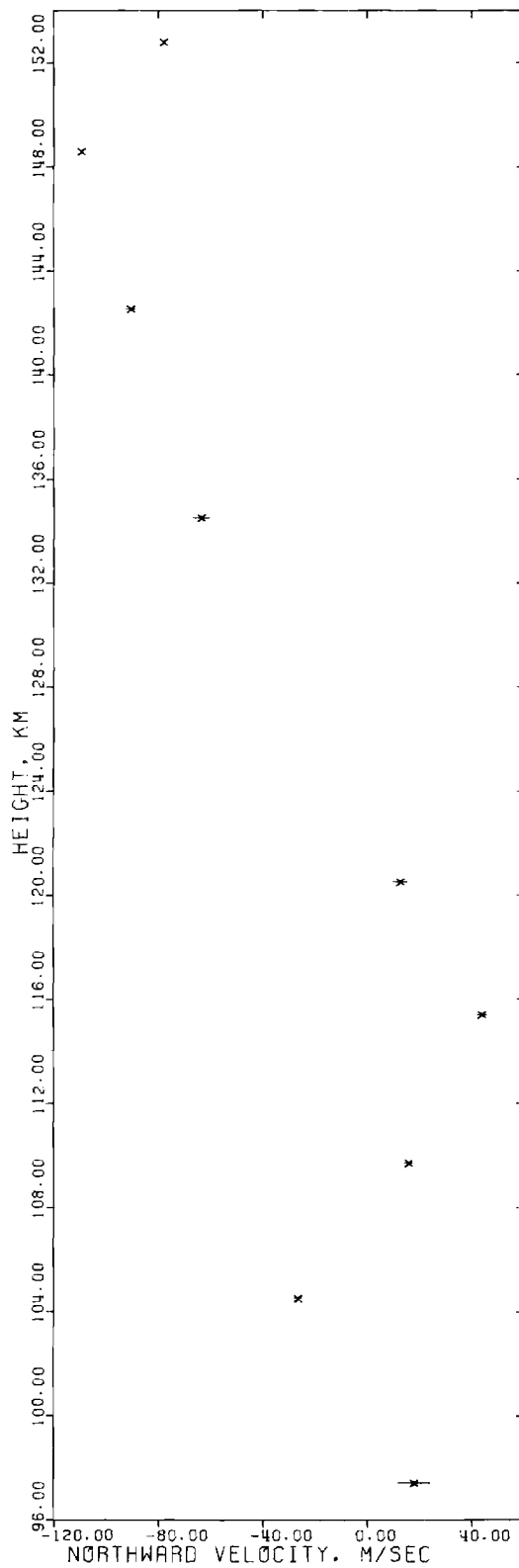
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ORA 5 CUPJ

POINT WINDS 1971.4

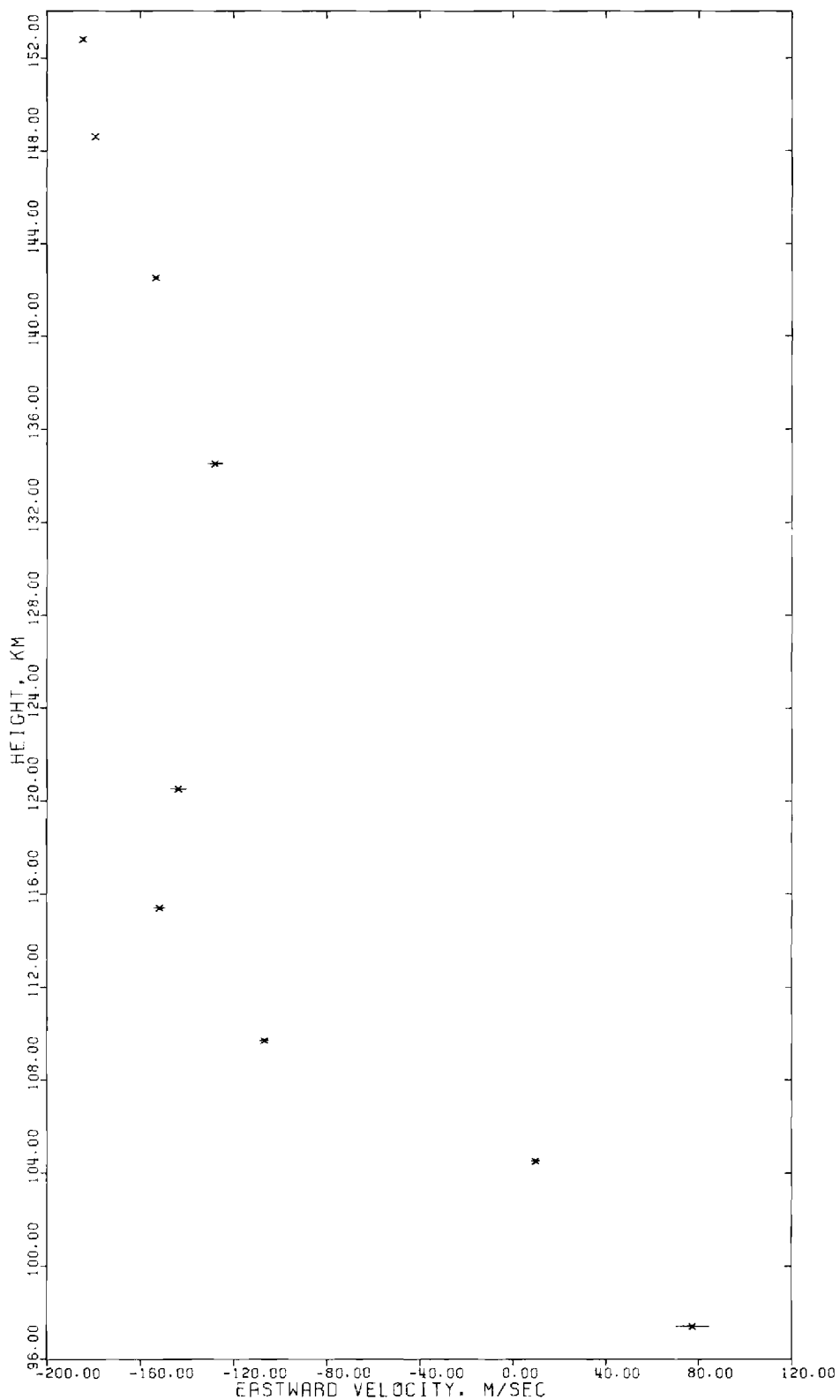
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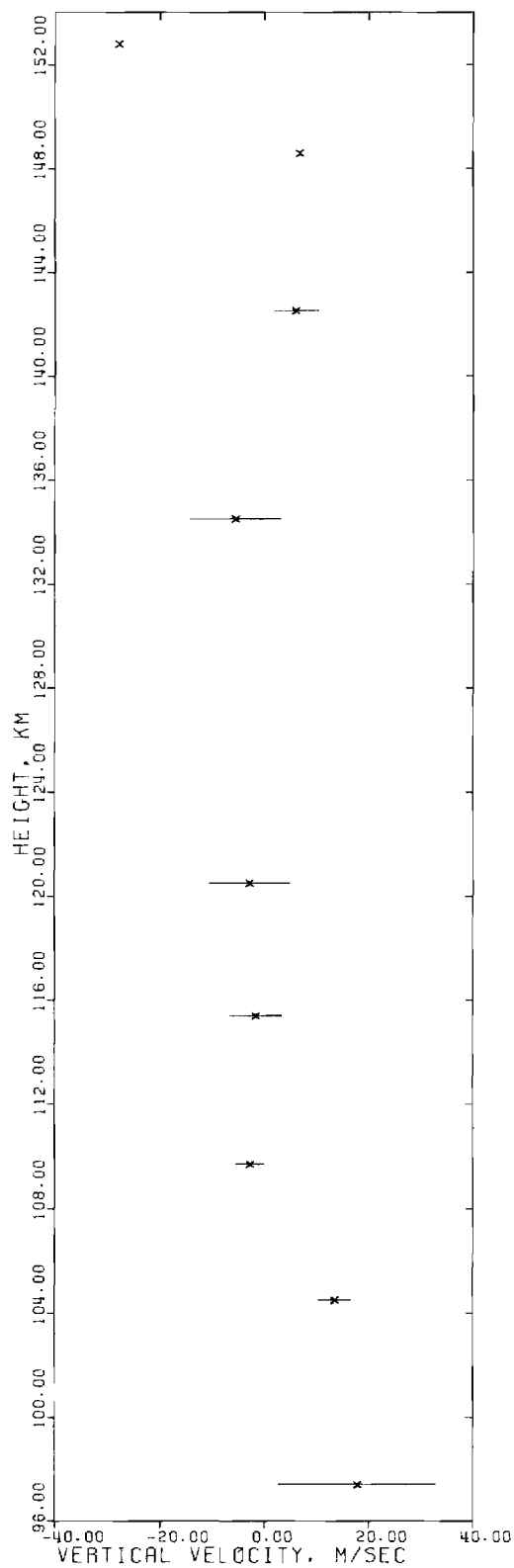


PAM 6 CUP

POINT WINDS 1971.4

5/18/71

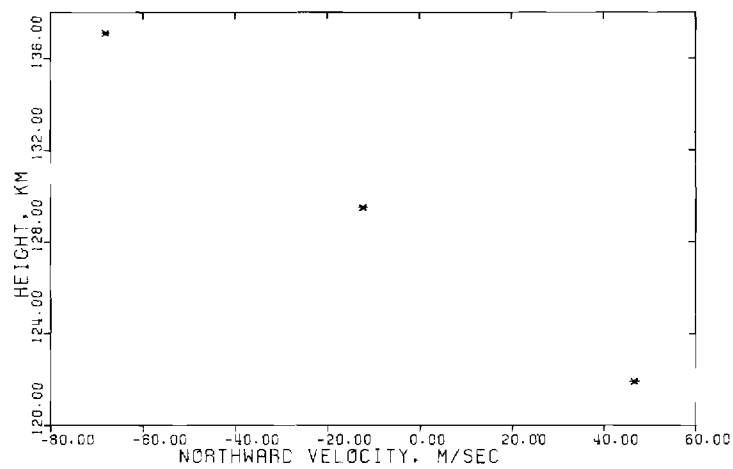
0340 COT AG



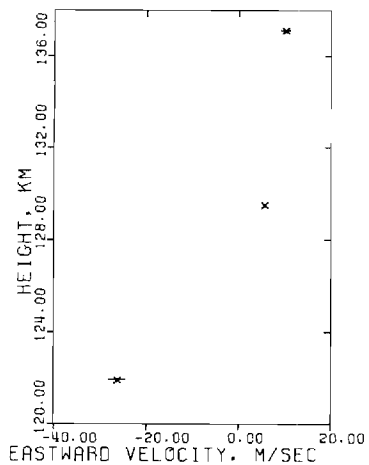
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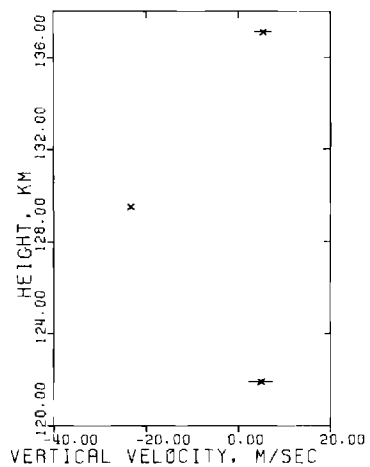
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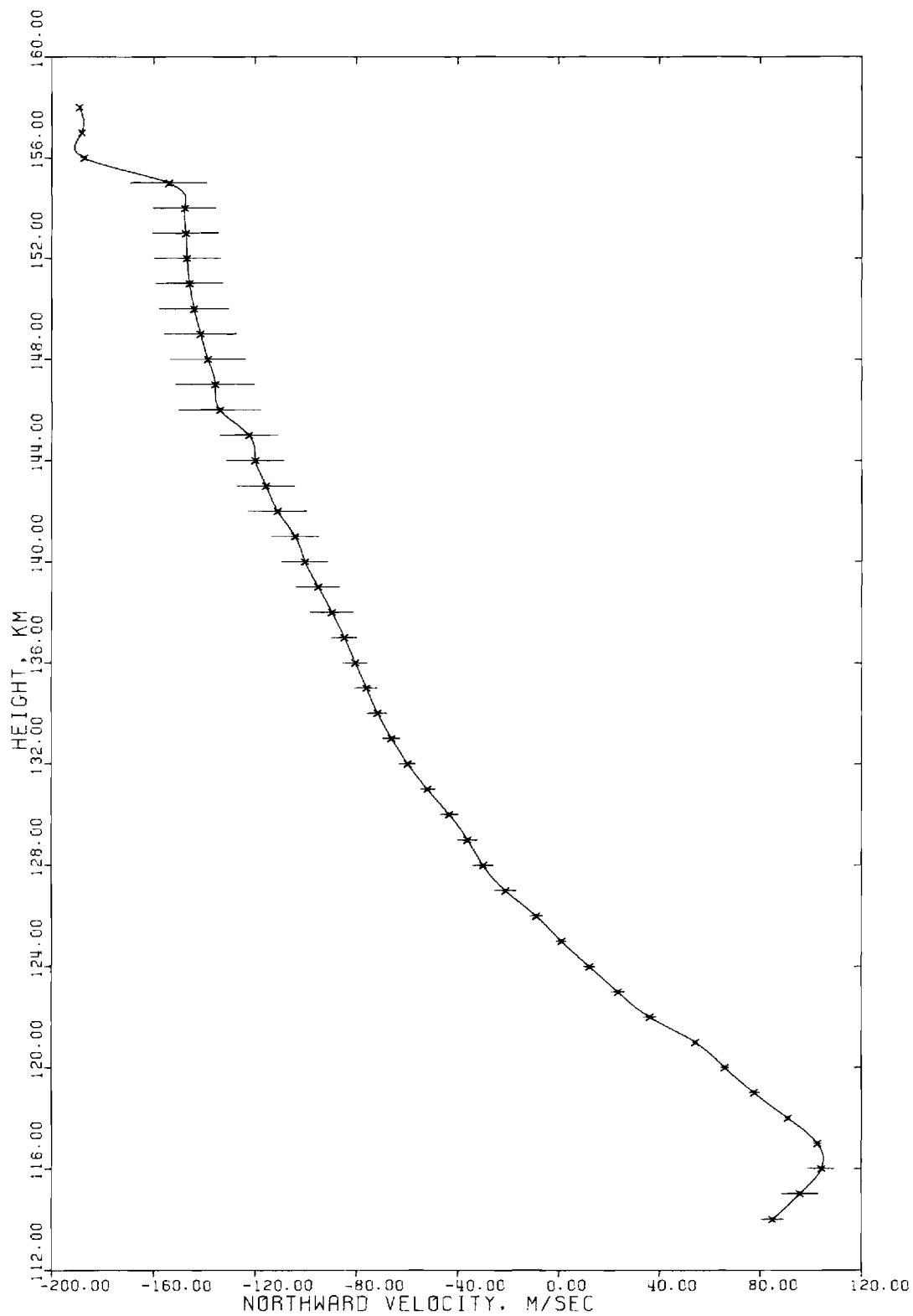
QUANTA 7 CUPJ POINT WINDS 1971.4 5/28/71 2014 CDT AG



QUANTA 7 CUPJ POINT WINDS 1971.4 5/28/71 2014 CDT AG



QUANTA 7 CUPJ POINT WINDS 1971.4 5/28/71 2014 CDT AG

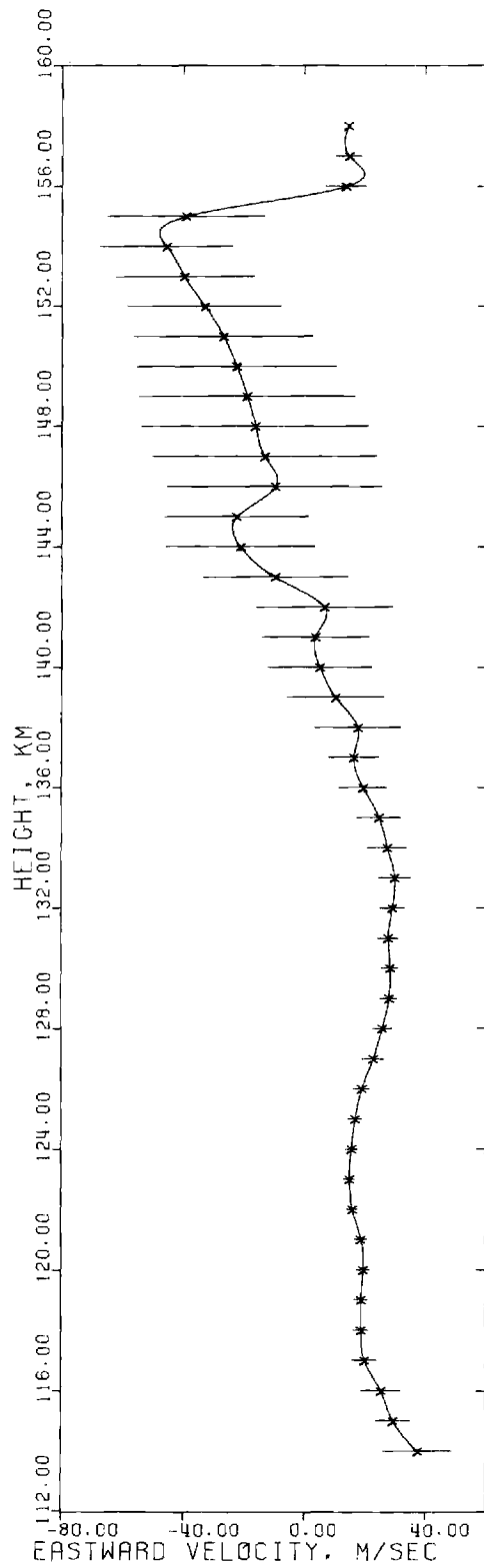


ROSY 8 [UP]

TRAIL WINDS 1971.4

5/20/71

2015 CDT AG

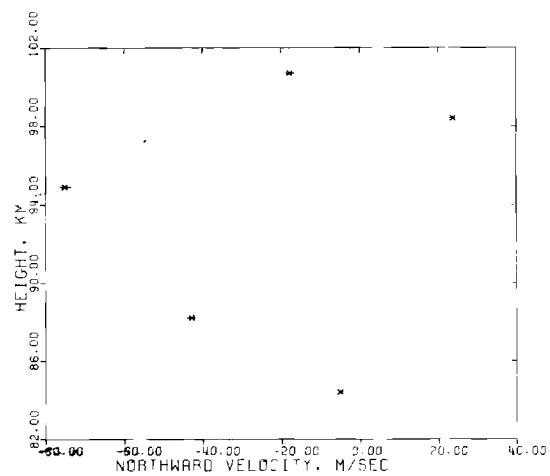


ROSY 8 [CUP]

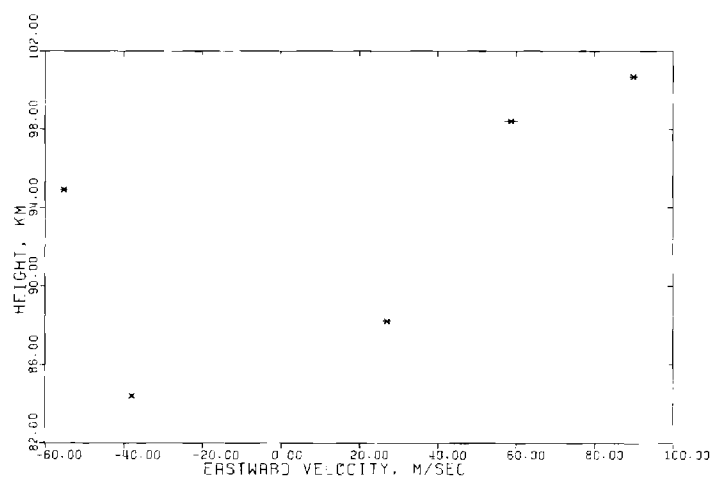
TRAIL WINDS 1971.4

5/20/71 2015 CDT AG

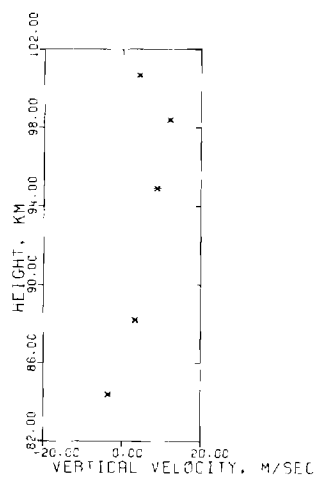




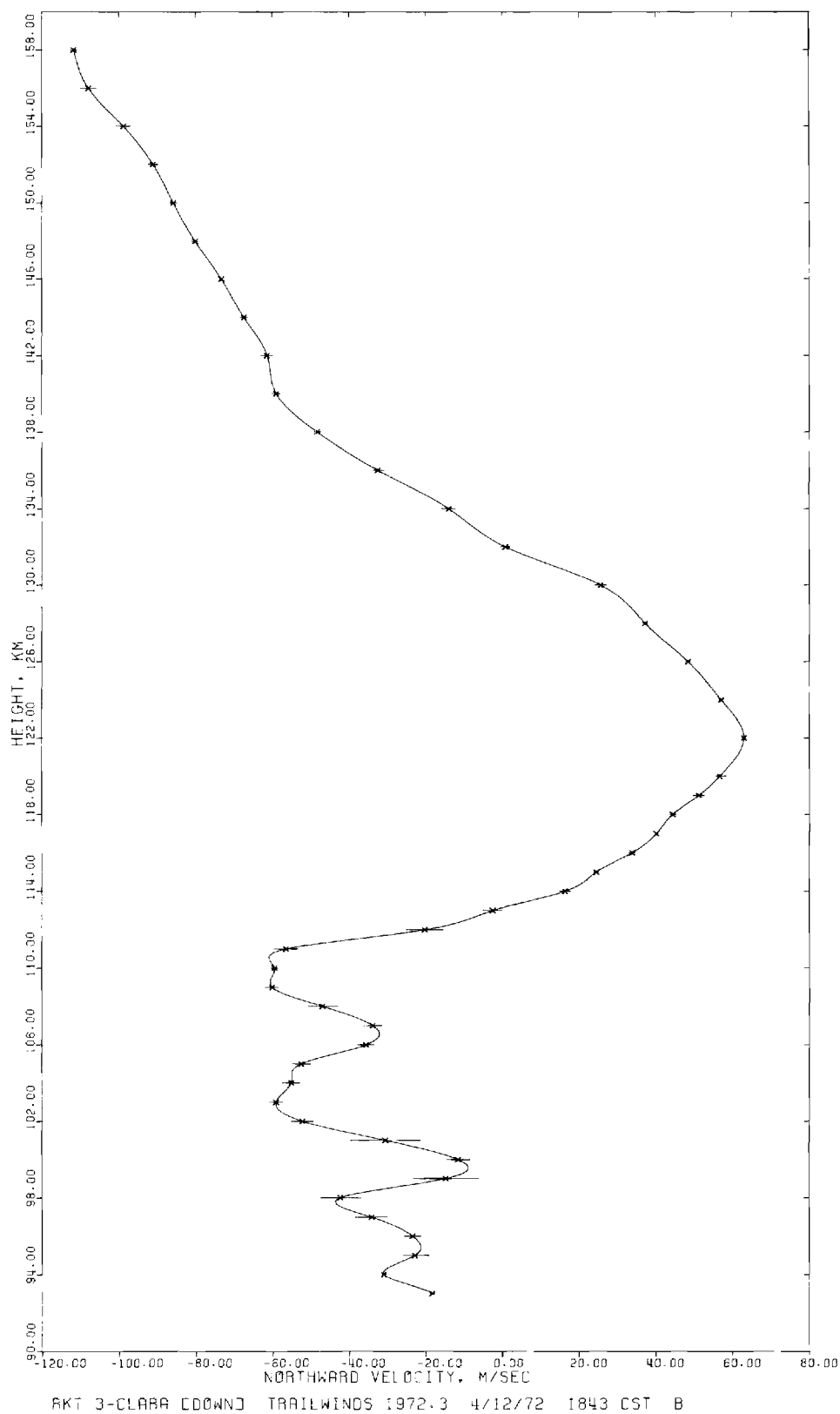
RKT 2-BARBARR [DOWN] POINTWINDS 1972.3 4/10/72 1838 CST B

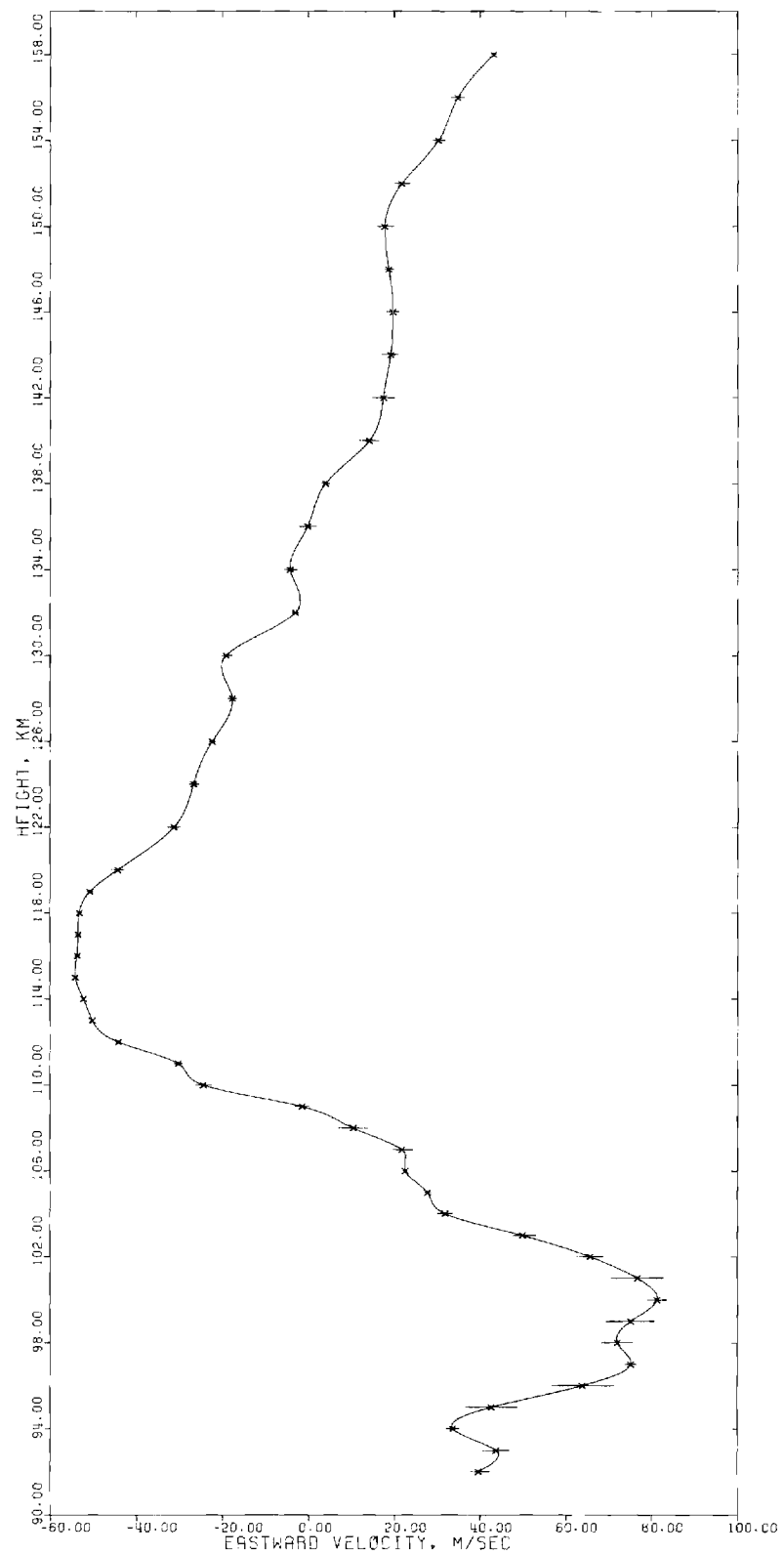


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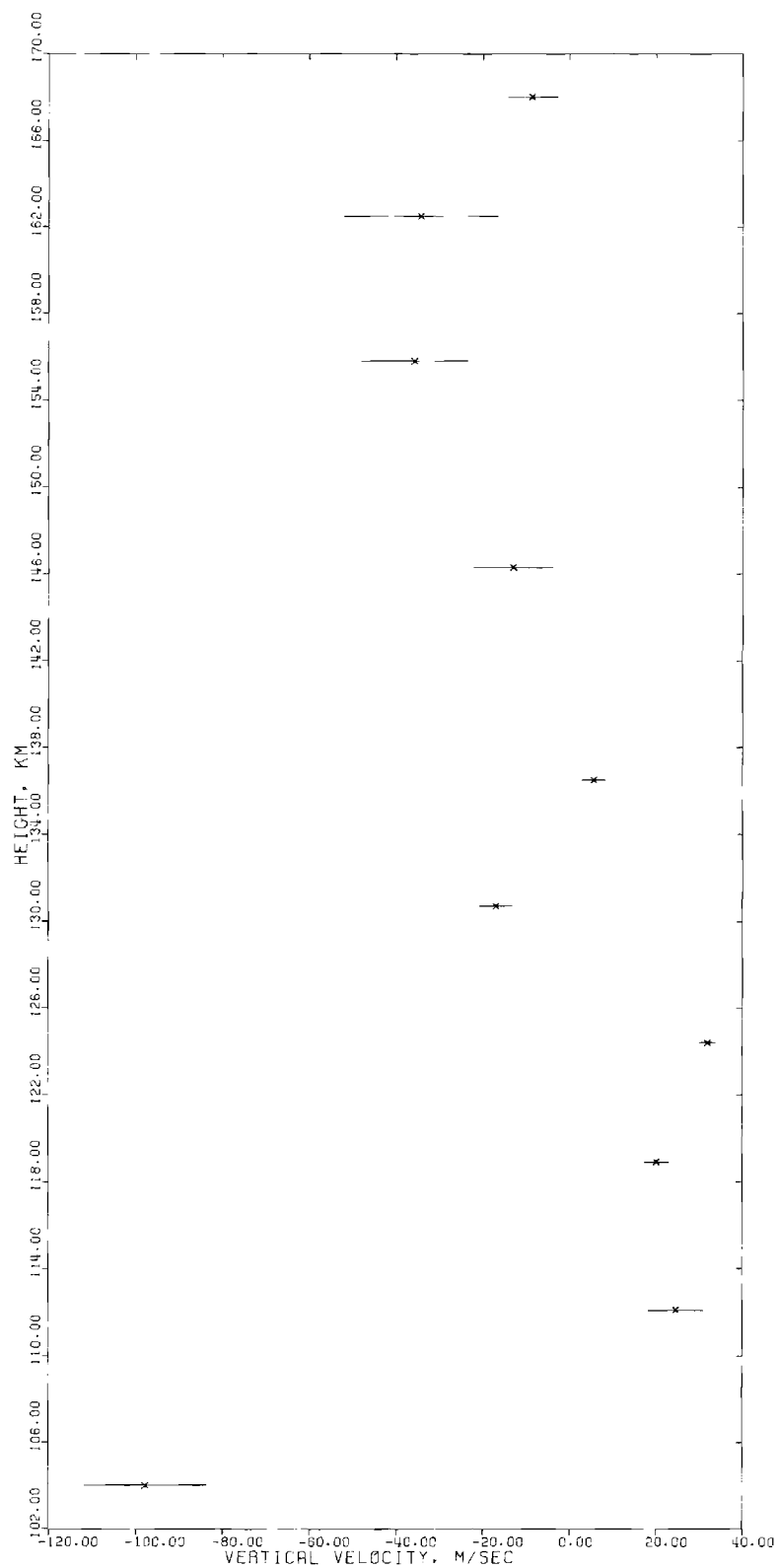


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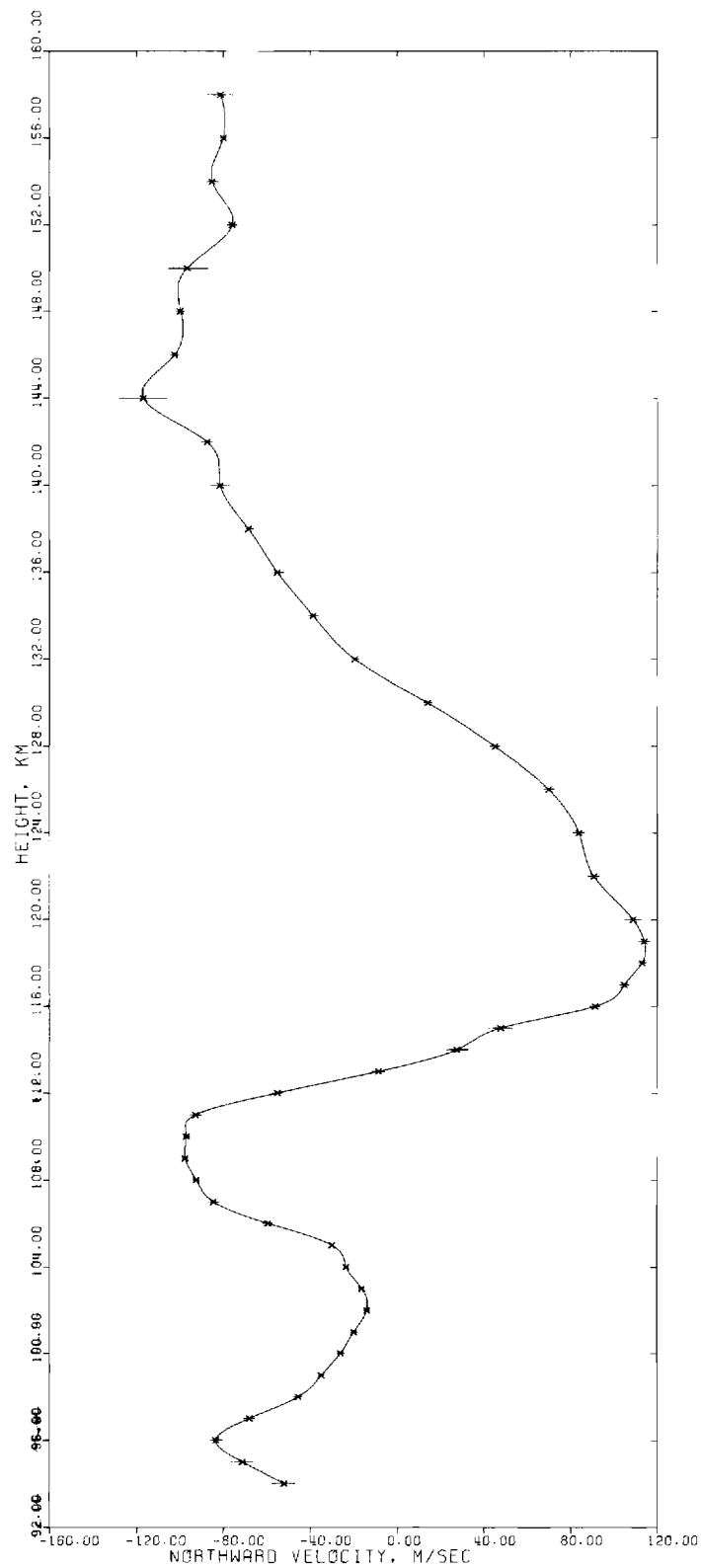




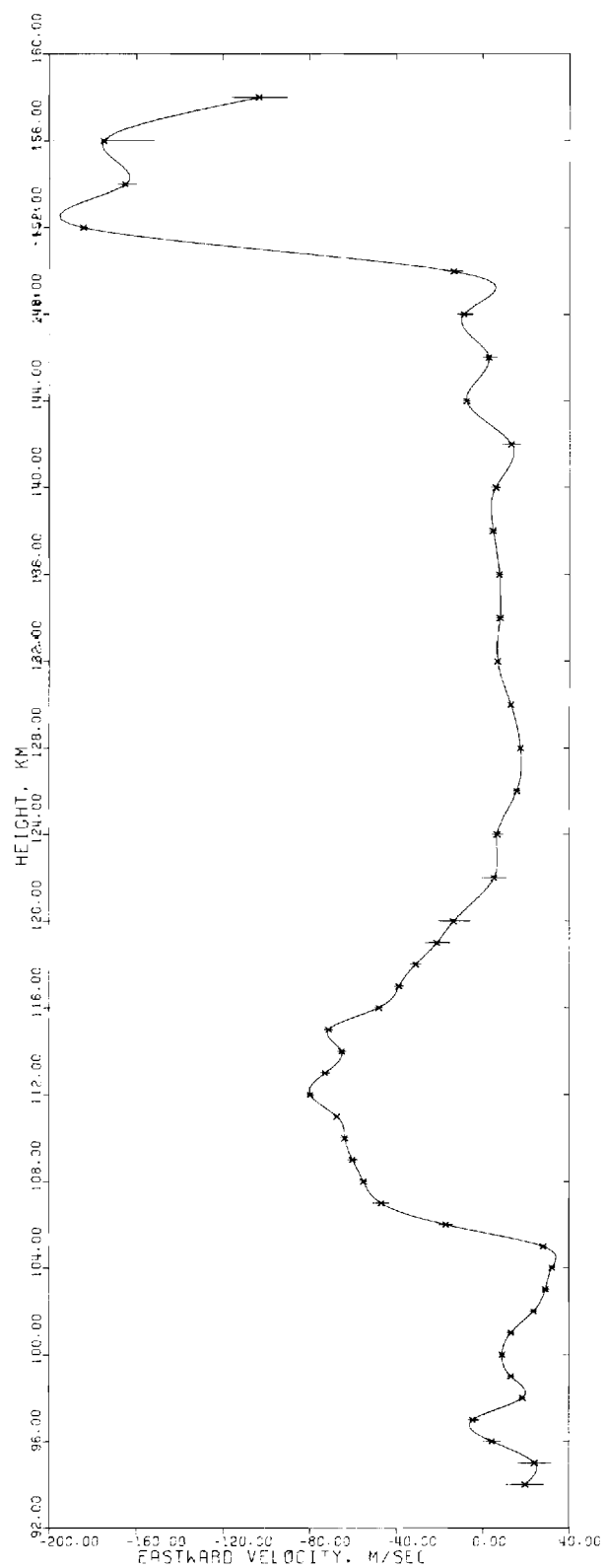
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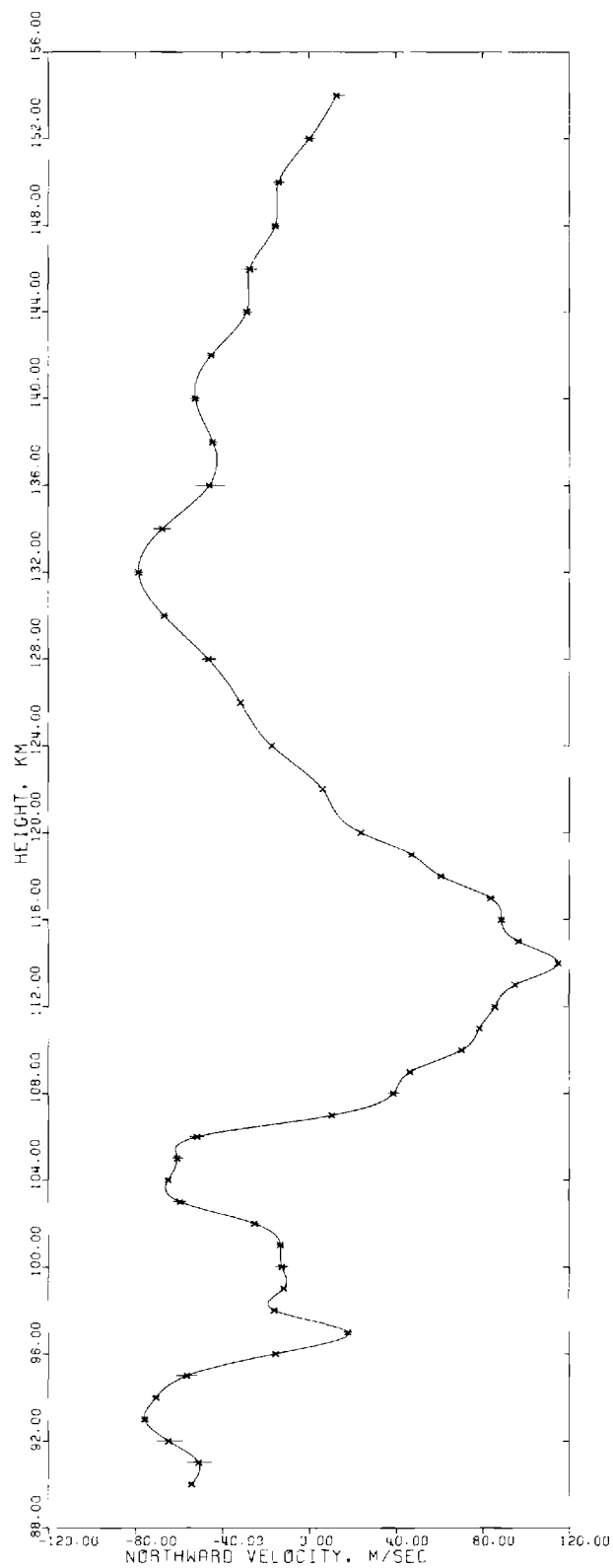
AKT 3 CLARA (DOWN) POINT WINDS 1972.3 4/12/73 1843 CST



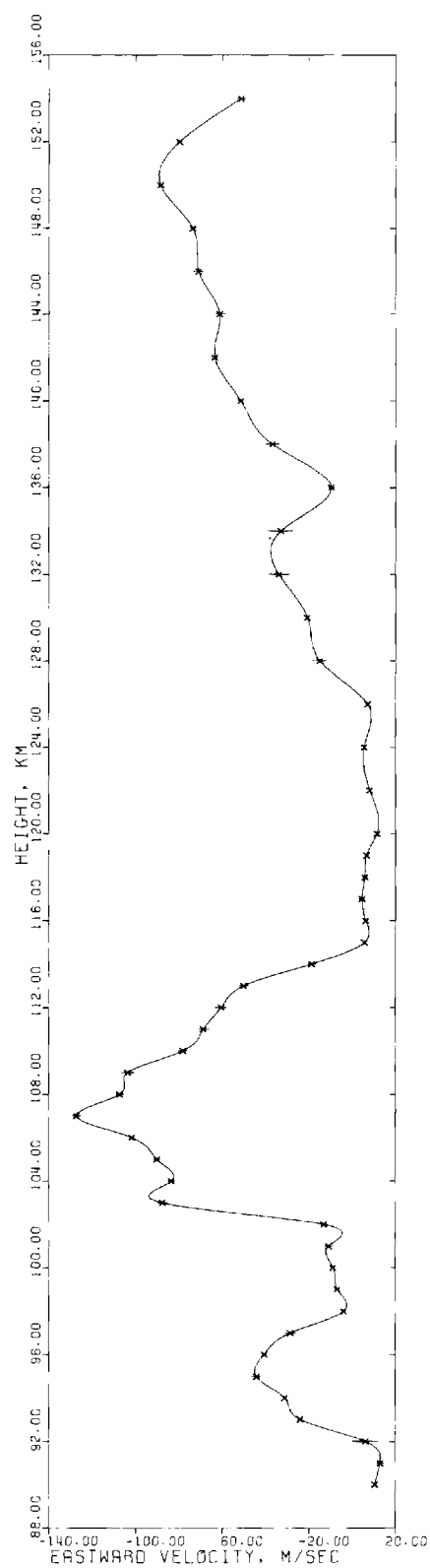
RKT 5-ELLA CUPJ TRAILWINDS 1972.3 4/12/72 2045 CST B



RKT 5-ELLA CLPT TRAILWINDS 1972 3 4/12/72 2045 CST B

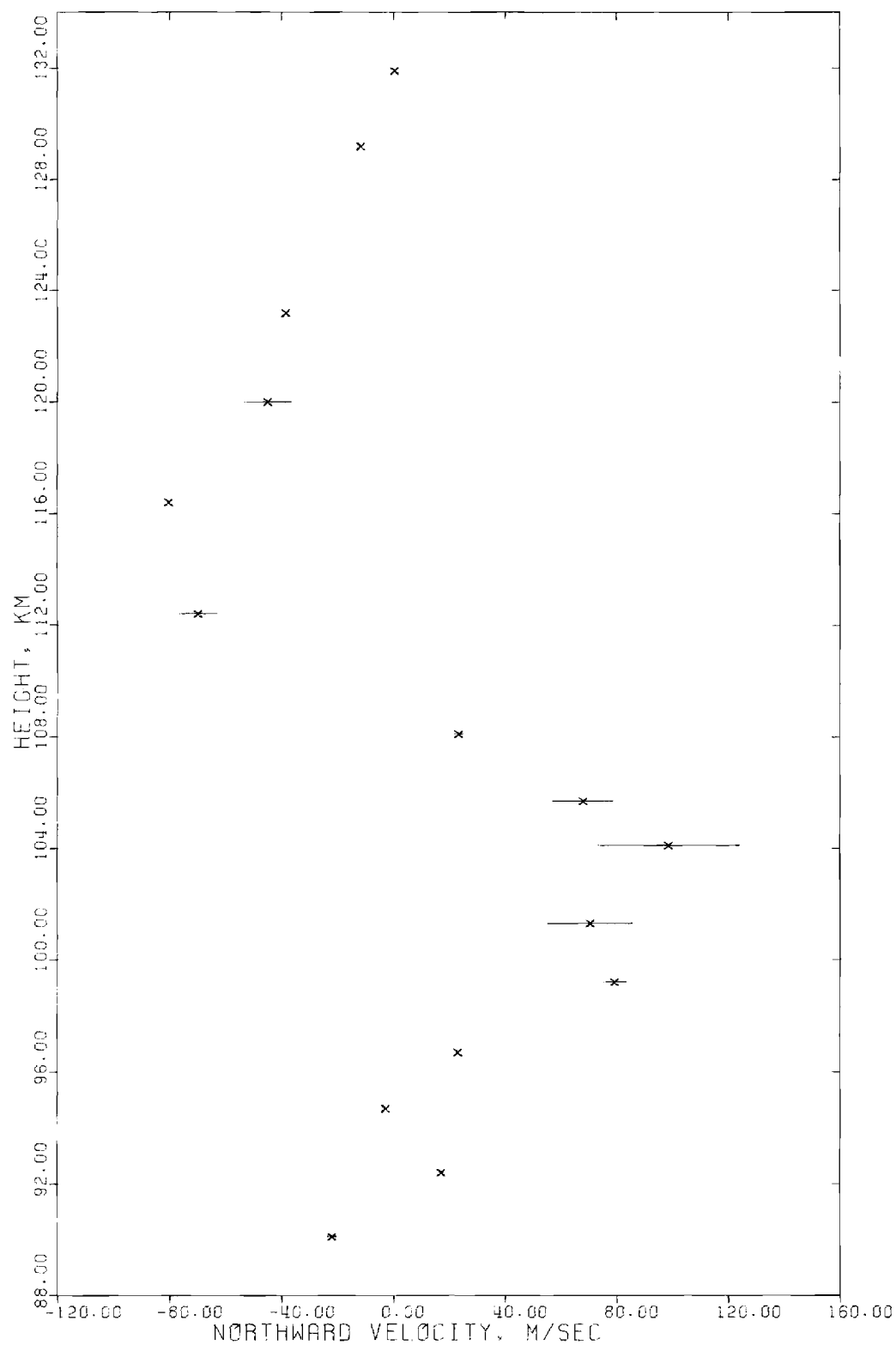


RKT 6-FREDA [DOWN] TRAILWINDS 1972.3 4/12/72 2315 CST 8

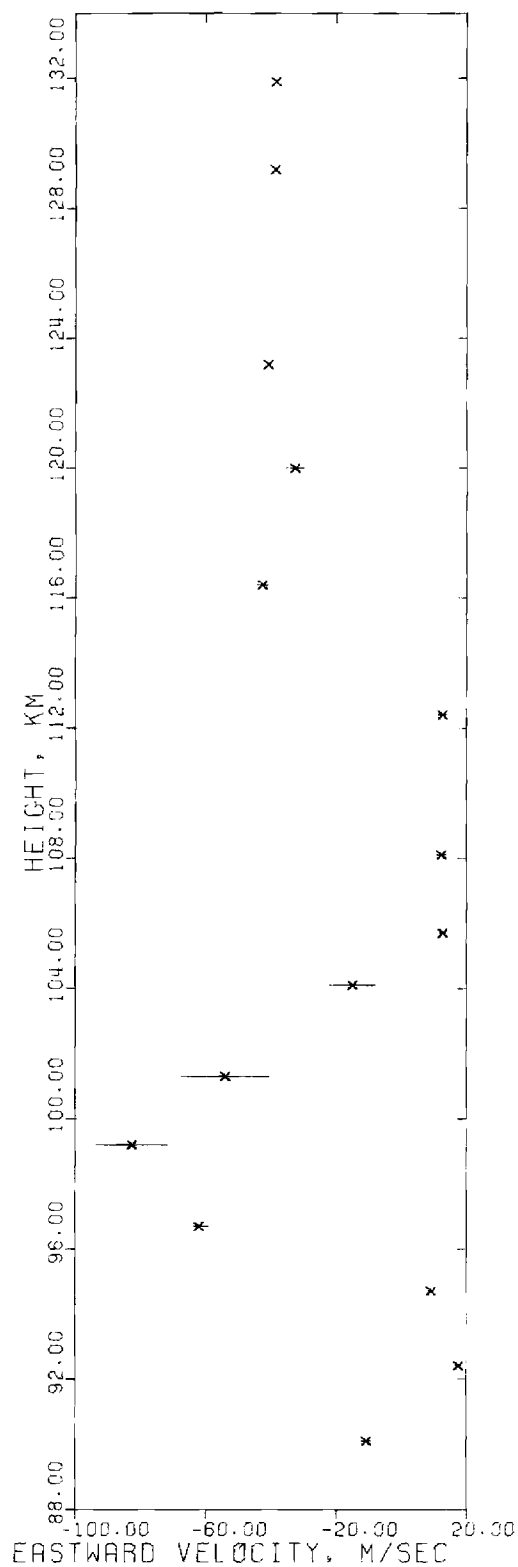


AKT 6-FREDA [DOWN] TRAILWINDS 1972-3 4/12/72 2315 CST 3



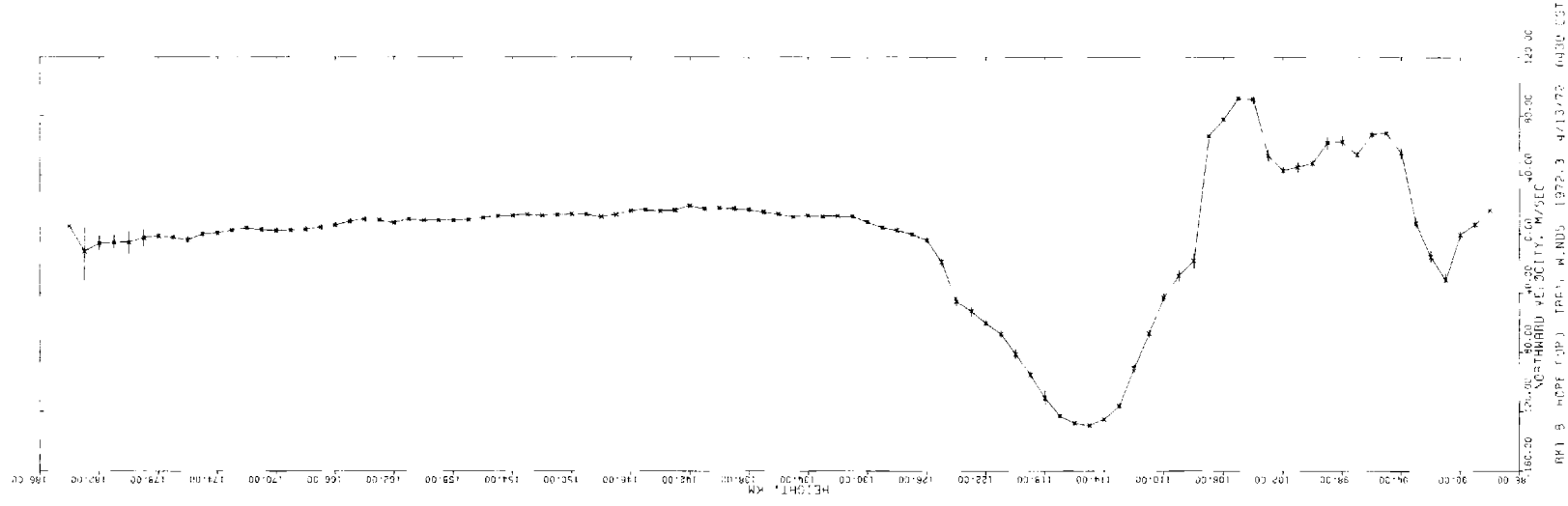


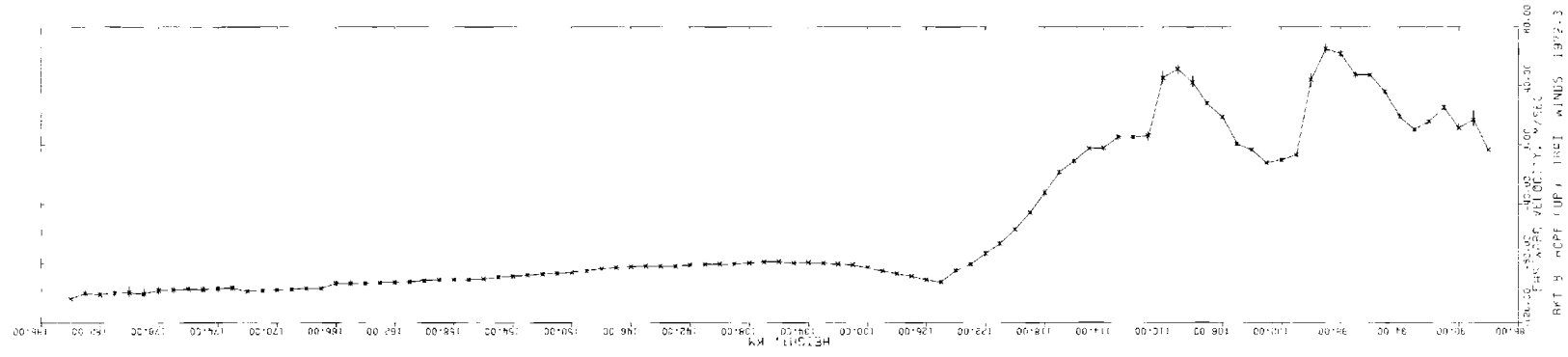
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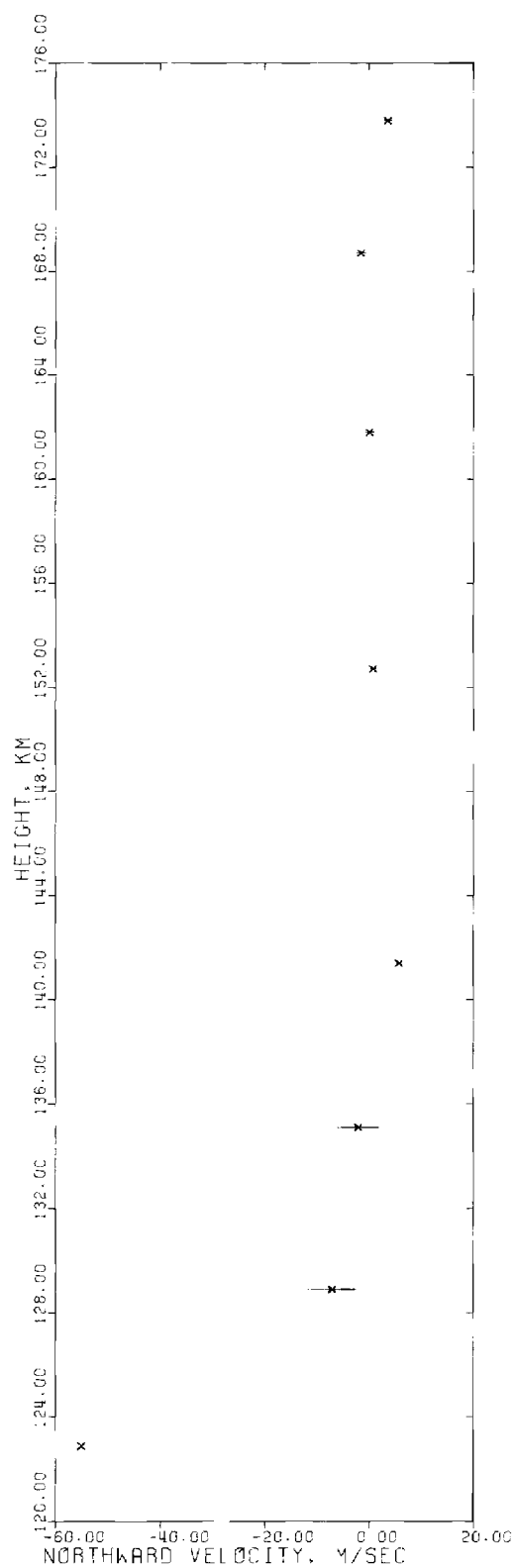


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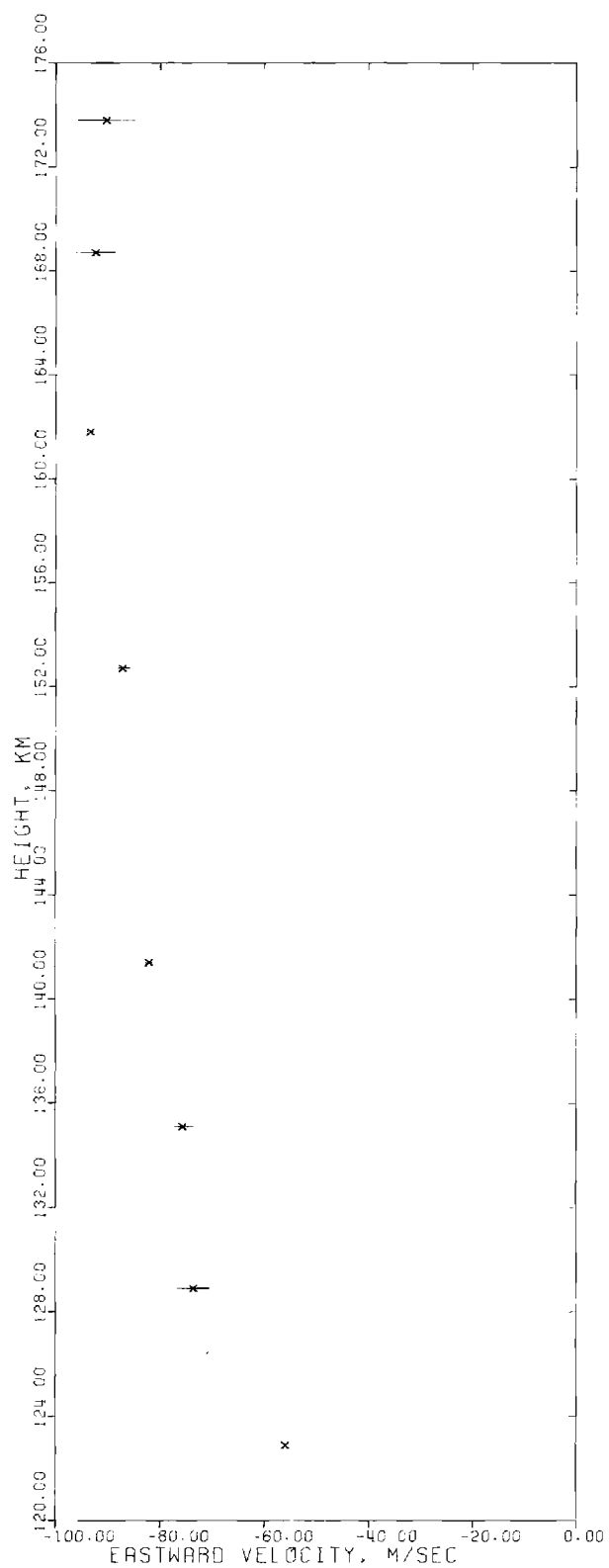




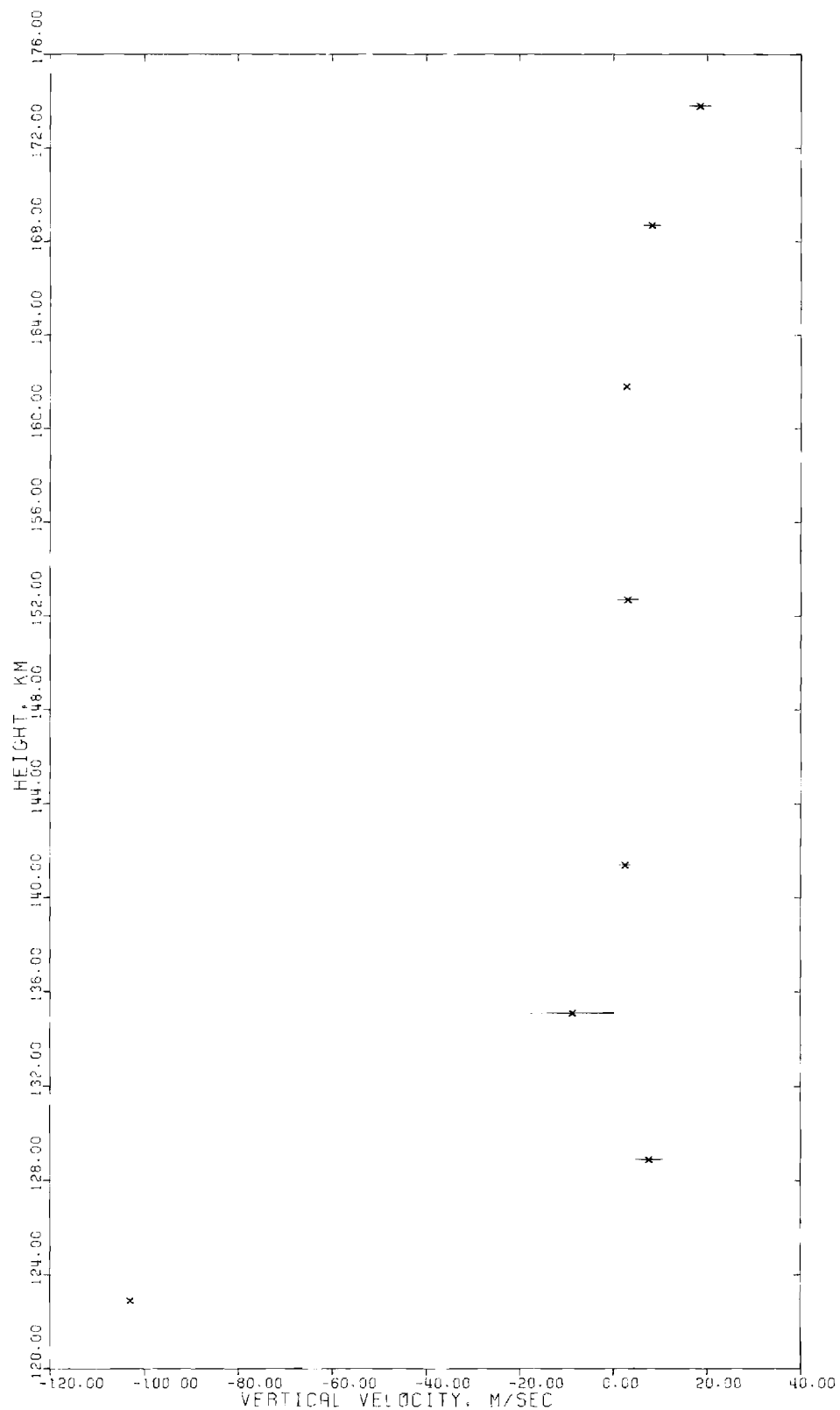




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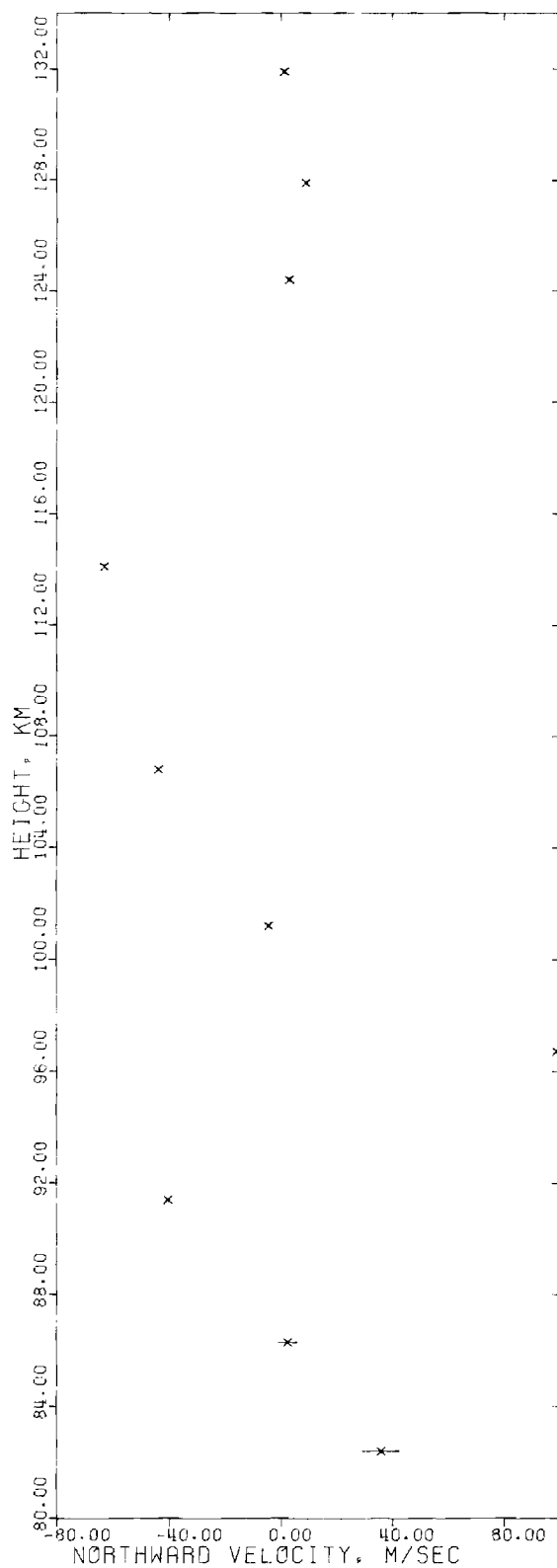


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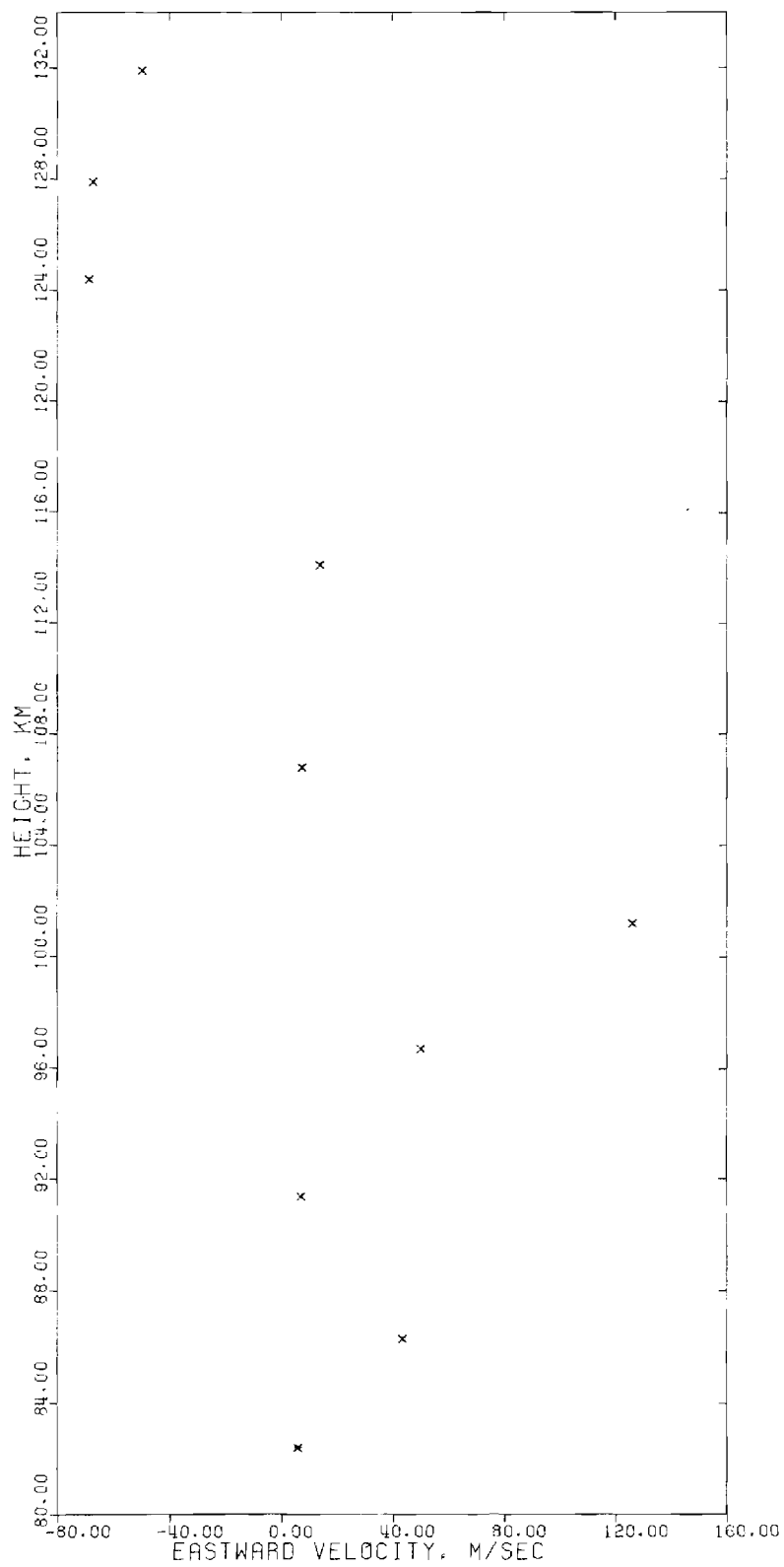


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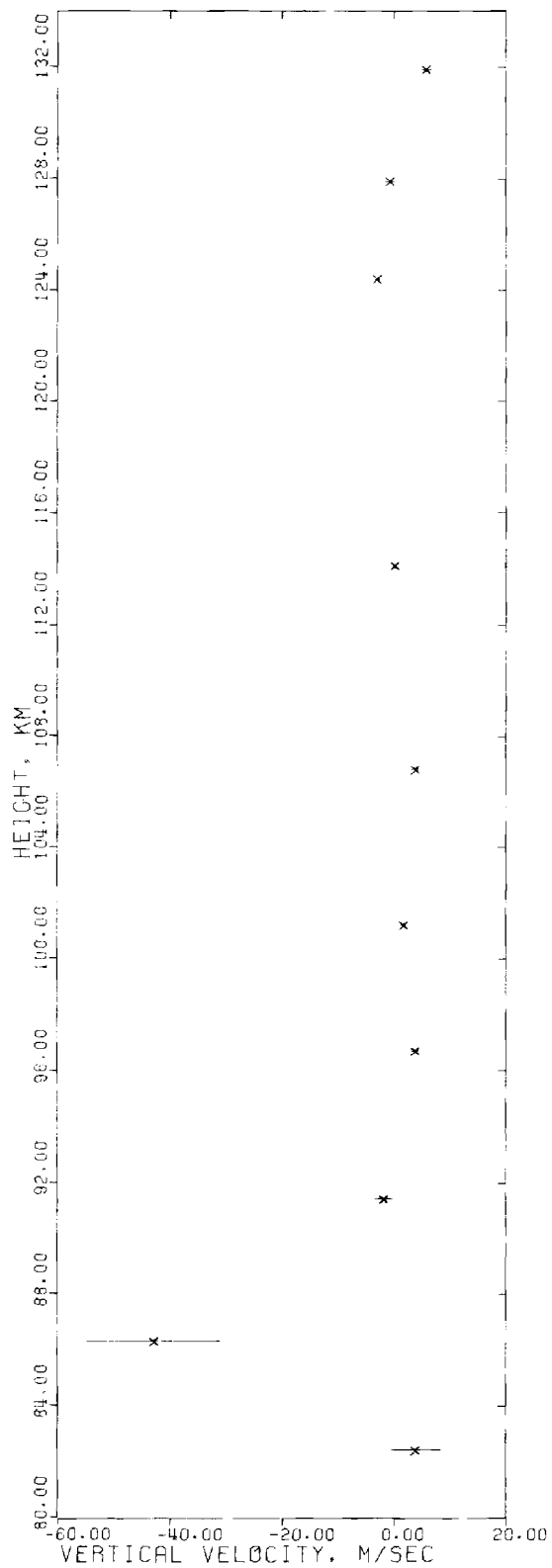




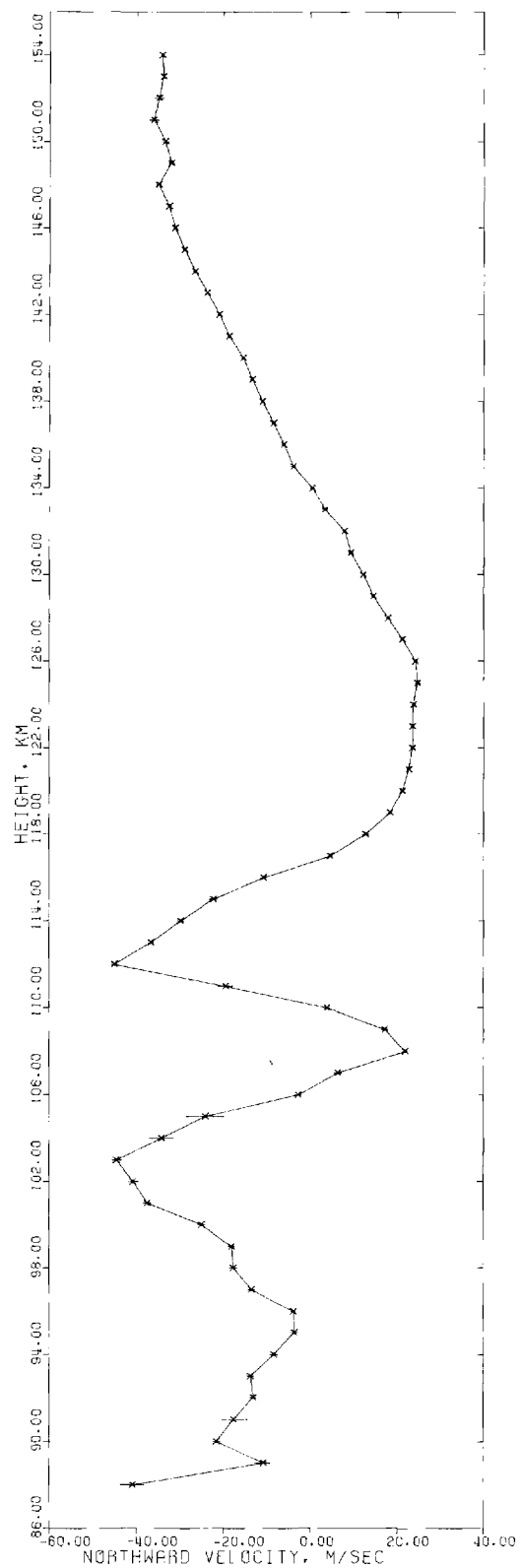
APT 9 INGRID (DOWN) POINTWINDS 1972.3 4/14/72 1845 CST



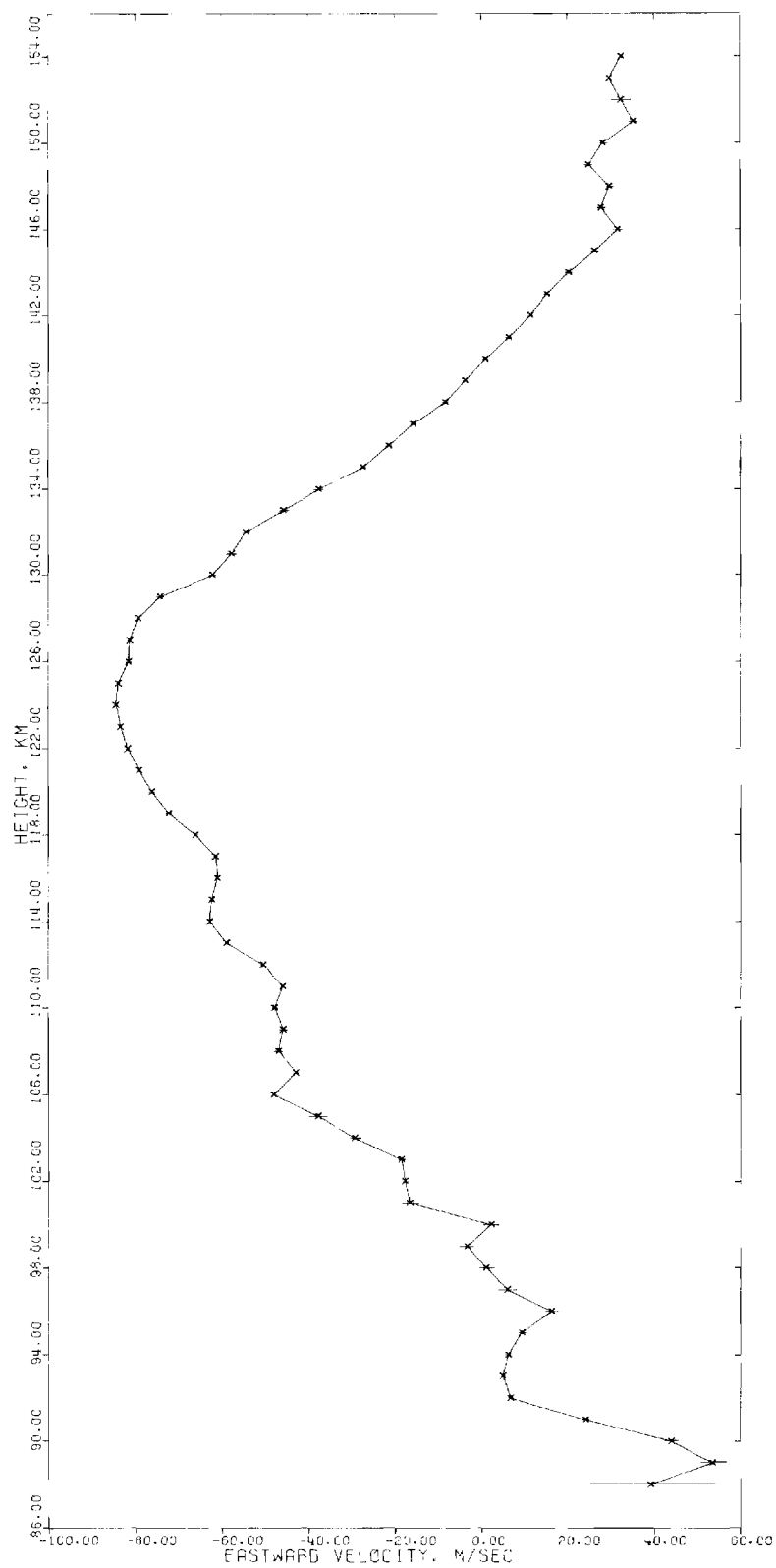
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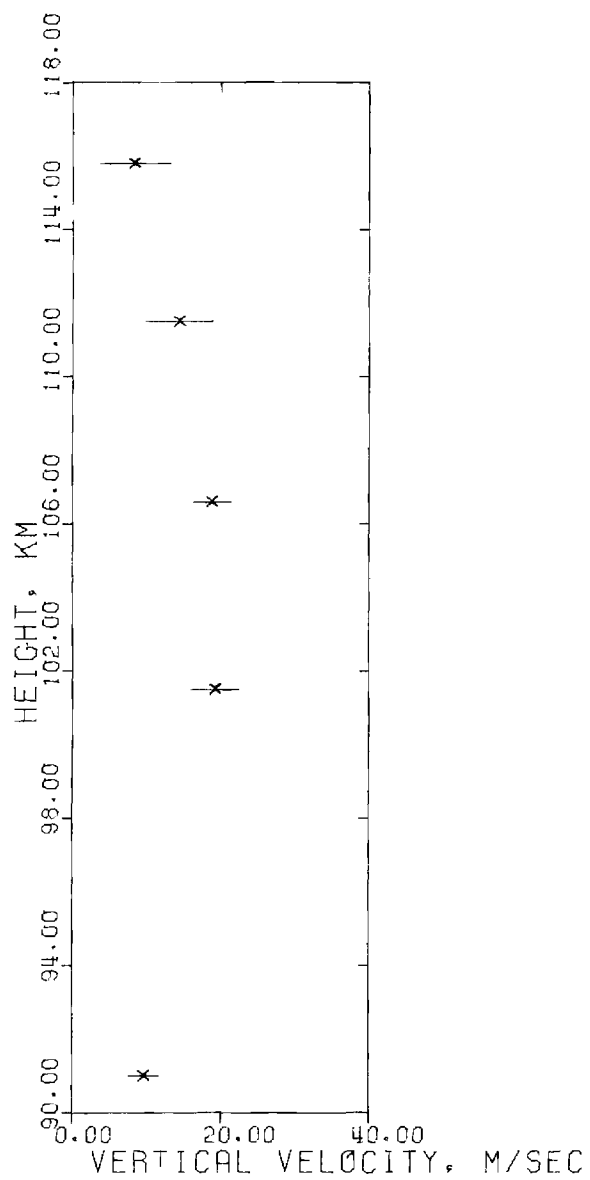
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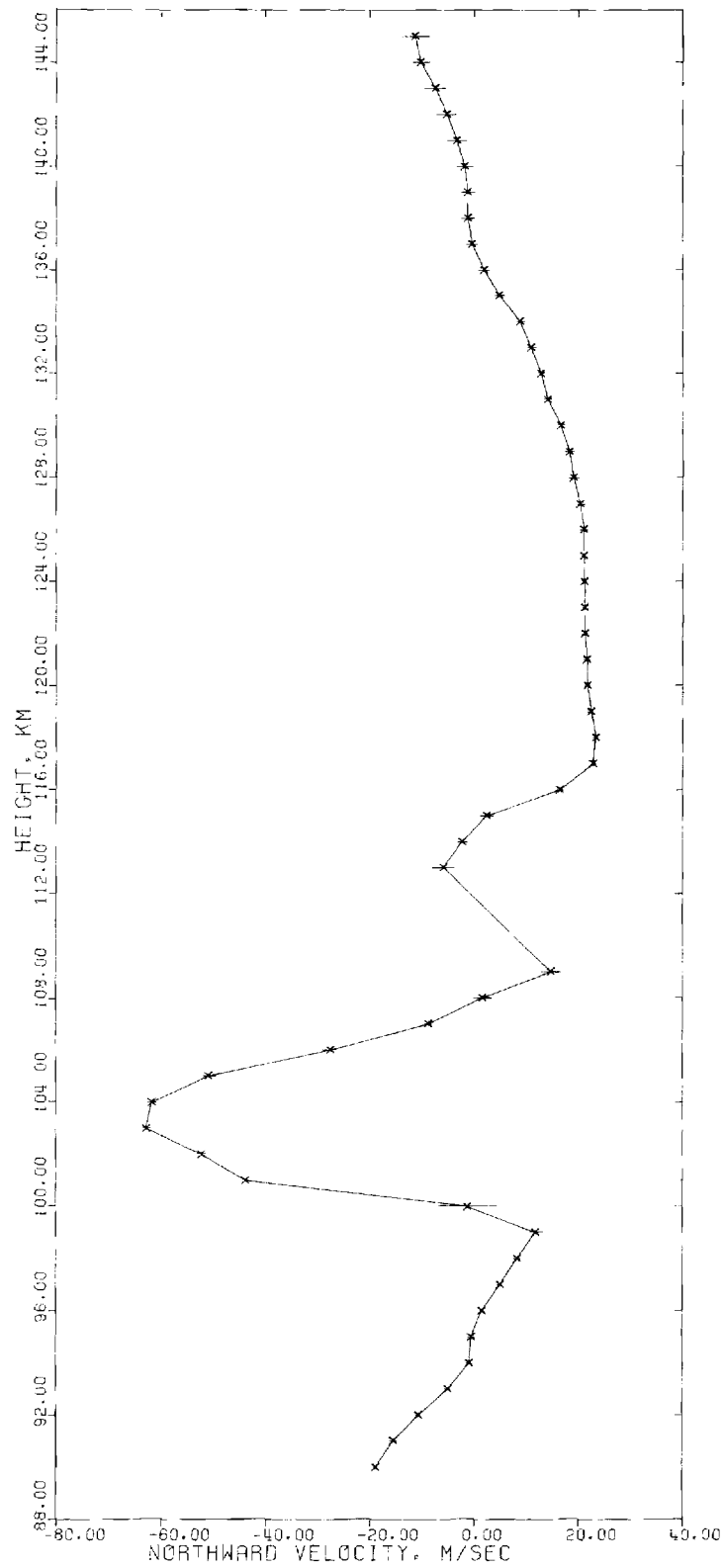
RKT : KATHY (DOWN) TRAIL WINDS 1972.9 10/31/72 1732 CST



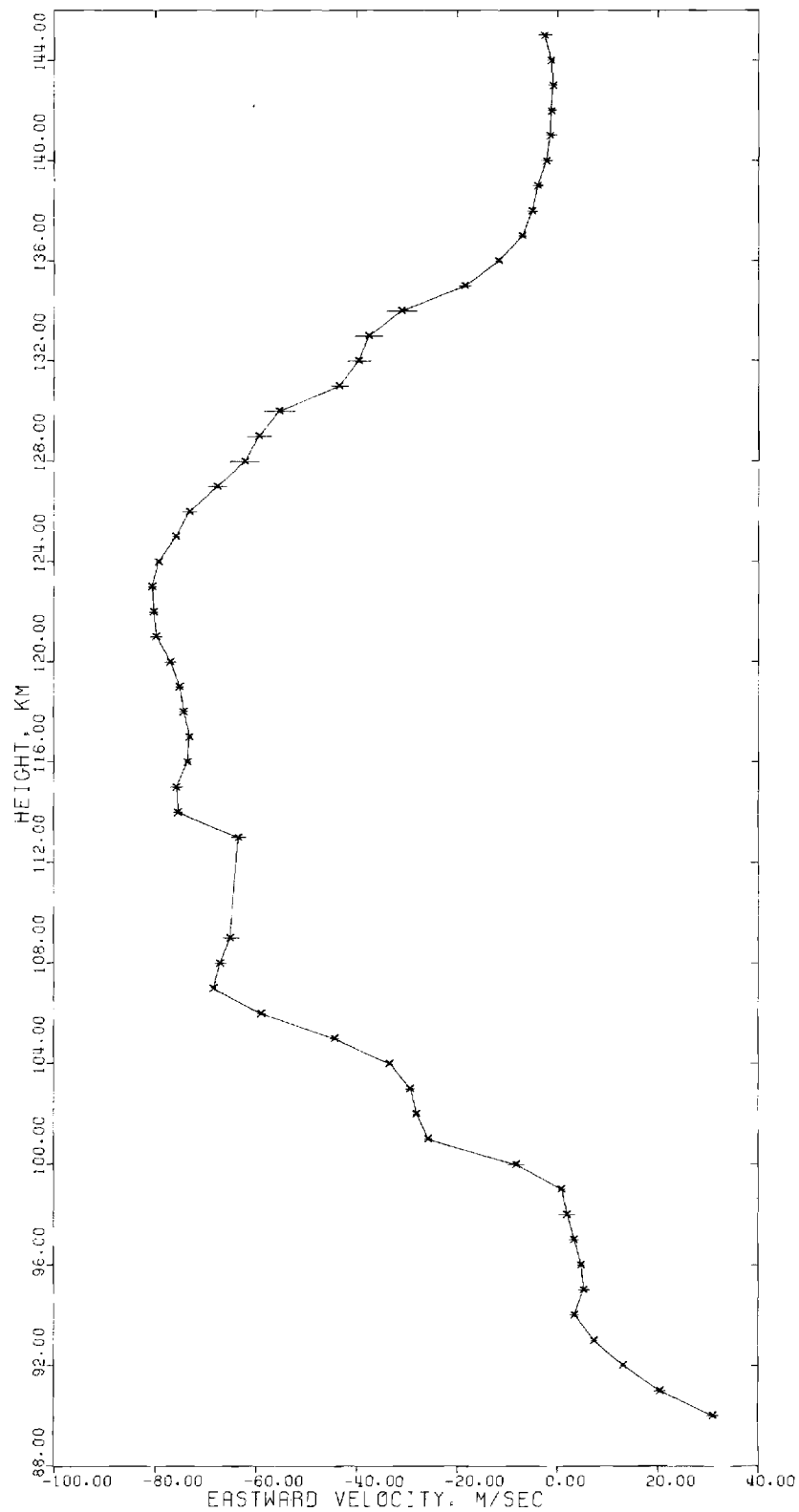
RKT 1 KATHY (DOWN) \*RAI WINDS 1972.9 10/31/72 1732 CST



RKT 1 KATHY (DOWN) POINT WINDS 1972.9 10/31/72 1732 CST



RKT 2 LANA (UP) TRAIL WINDS 1972.9 10/31/72 1751 CST



RKT 2 LANA (UP) TRAIL WINDS 1972.9 10/31/72 1751 CST



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SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER AFCRL-TR-74-0537	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle)  WINDS OBSERVED FROM MAY 1971 THROUGH OCTOBER 1974 IN THE 77 TO 194 KM ALTITUDE REGION		5. TYPE OF REPORT & PERIOD COVERED Scientific. Final April 1, 1971 - March 31, 1974
		6. PERFORMING ORG. REPORT NUMBER E-16-616
7. AUTHOR(s) Robert G. Roper Howard D. Edwards		8. CONTRACT OR GRANT NUMBER(s) F-19628-71-C-0070
9. PERFORMING ORGANIZATION NAME AND ADDRESS Georgia Institute of Technology School of Aerospace Engineering Atlanta, GA. 30332		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS 7635-02,14
11. CONTROLLING OFFICE NAME AND ADDRESS		12. REPORT DATE October 1974
		13. NUMBER OF PAGES 72
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office) Air Force Cambridge Research Laboratories Hanscom AFB, Massachusetts 01731 Contract Monitor: C. A. Fosberg/LKC		15. SECURITY CLASS. (of this report) Unclassified
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report)  Approved for public release; distribution unlimited		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES  TECH OTHER.		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number)  Upper Atmospheric Wind Data Rocket Wind Data Wind Data		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Horizontal winds and shears have been computed from 18 rocket released chemical trails. Tables are presented which give vertical profiles of wind speed, heading, meridional and zonal components, and wind shear components. Three of the rockets produced releases on both the up and down leg of their trajectories. These data are useful for investigation of spatial variations. The wind data for may, 1971 (KAY, LYNN, MARY, ORA and PAM), and April, 1972 (CIARA, ELIA, FRED, GLADYS and HOPE) relate to time series releases made within a single night; KAY and LYNN were in fact simultaneous launches. Two more time		

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series pairs were released in April, 1972 (INGRID and JANE), and in October, 1972 (KATHY and IANA). These data are suitable for time variation studies. A large number of point (puff) series releases, namely 14 trails, have been reduced to provide vertical as well as horizontal winds. In addition to the tabulated values, graphs of the zonal, meridional, and, where appropriate, vertical wind components are also presented.